



UNIVERSITY PROGRAM MANAGEMENT INFORMATION SYSTEM

FY 1988

(NASA-TM-101743) NASA UNIVERSITY PROGRAM
MANAGEMENT INFORMATION SYSTEM, FY 1988
(NASA) 405 p

N90-71398

00/80 Unclass
0270162

Prepared by:

Office of External Relations
University Programs Branch
Washington, D. C. 20546

This publication (NASA TM-101743) for sale by:

**National Technical Information Service
Springfield, Virginia 22161**

Telephone: (703) 487-4650

IMPORTANT NOTICE

This report is compiled primarily from information obtained from two internal NASA sources:

1. "CASE Report on Support of Colleges and Universities" (NASA Form 1356).
2. "Individual Procurement Action Report" (NASA Form 507).

Therefore, other sources should be used for completing Forms 507 or 1356.

NASA'S UNIVERSITY PROGRAM

ACTIVE PROJECTS

FISCAL YEAR 1988

**National Aeronautics and Space Administration
Office of External Relations
University Programs Branch
Washington, D.C. 20546**

FOREWORD

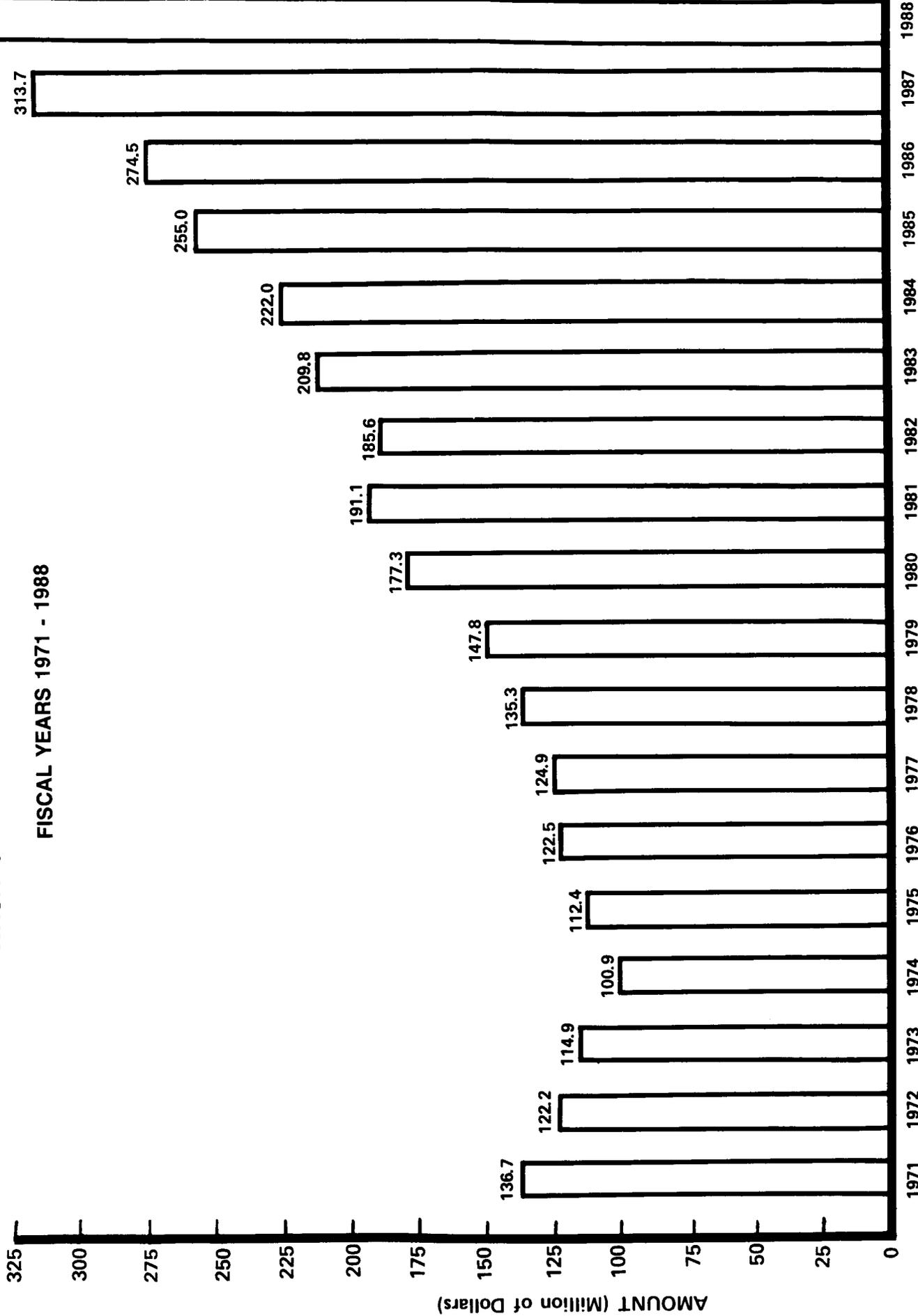
As basic policy NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

The report was prepared by the University Programs Branch, Office of External Relations, NASA Headquarters.

NASA OBLIGATIONS TO UNIVERSITIES

FISCAL YEARS 1971 - 1988



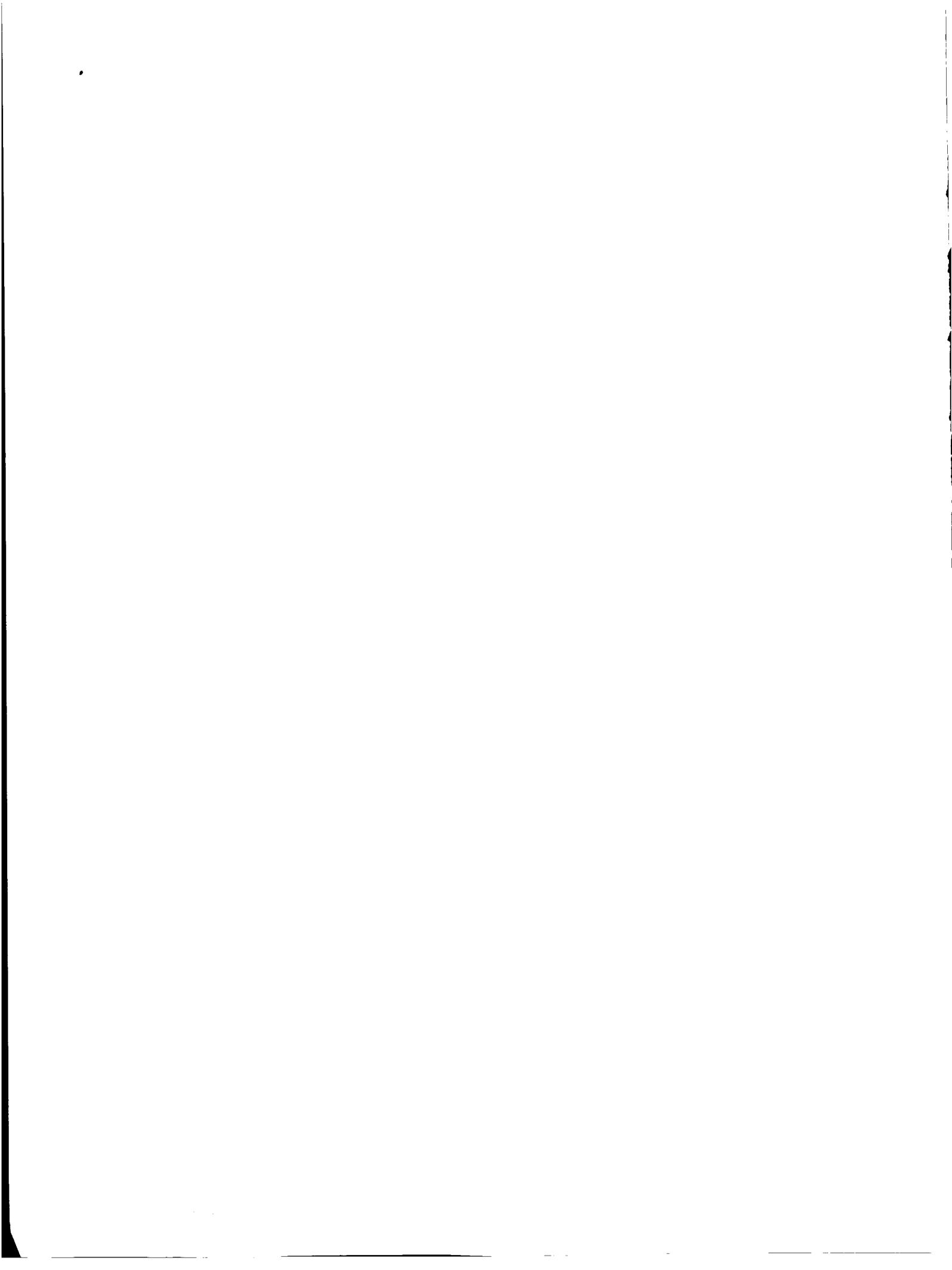
NOTE: Excludes awards to California Institute of Technology for operation of the Jet Propulsion Laboratory.

FY 1971 includes \$15.0M in awards to Draper Lab. FY 1973 includes \$5.2M in awards to Draper Lab.

TABLE OF CONTENTS

This report includes data on projects active during Fiscal Year 1988.

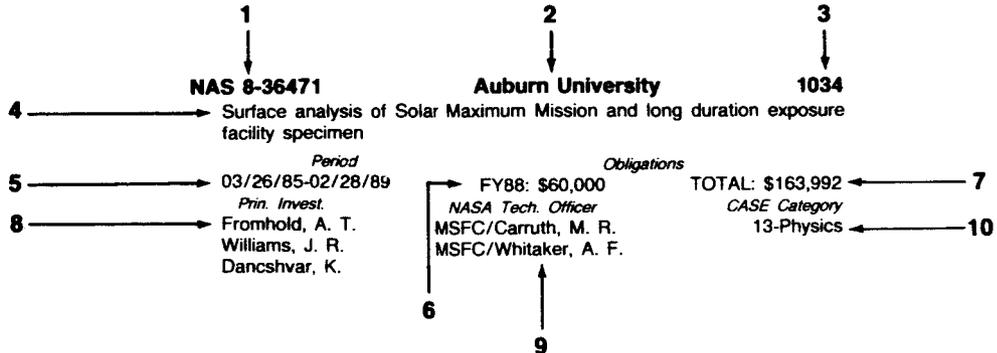
Alabama	1	Montana	184
Alaska	12	Nebraska	185
Arizona	14	Nevada	187
Arkansas	28	New Hampshire	187
California	29	New Jersey	190
Colorado	80	New Mexico	193
Connecticut	91	New York	196
Delaware	93	North Carolina	214
District of Columbia	94	North Dakota	219
Florida	99	Ohio	219
Georgia	106	Oklahoma	238
Hawaii	111	Oregon	239
Idaho	115	Pennsylvania	241
Illinois	115	Rhode Island	250
Indiana	124	South Carolina	253
Iowa	129	South Dakota	254
Kansas	134	Tennessee	255
Kentucky	136	Texas	258
Louisiana	137	Utah	279
Maine	140	Vermont	282
Maryland	140	Virginia	282
Massachusetts	153	Washington	298
Michigan	170	West Virginia	304
Minnesota	177	Wisconsin	304
Mississippi	180	Wyoming	309
Missouri	181	Foreign Countries	310
		Appendix-Cross Index by Field of Science and Engineering	313



USER'S GUIDE

The University Program Report provides current information and related statistics for each grant/contract/cooperative agreement active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

I. Typical Citation



1. Agreement Number.*
2. Institution Name.
3. Accession Number.
4. Brief work description.
5. Approximate period of performance.
6. Amount (if any) actually provided during the indicated fiscal year.
7. Total amount actually provided during the indicated period of performance.
8. Principal Investigator(s) at the educational institution.
9. NASA Technical Officer(s) and organizational location.
10. CASE Field of Science and Engineering code and name.

*Uniquely identifies project. Prefixes denote type of instrument as follows:

Grants
 Cooperative Agreements
 Contracts
 Space Act Agreements
 NAG, NAGW, NGF, NGT, NGL, NGR, NSG
 NCC, NCCW
 DEN, NAS, NASR, NASW, NSR
 NCA

II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

Abbrev.	Installation Name and Address	Telephone Number for Information
ARC	Ames Research Center NASA Moffett Field, CA 94035	415/694-5000
DFRC	Dryden Flight Research Facility NASA P.O. Box 273 Edwards, CA 93523	805/258-3311
GSFC	Goddard Space Flight Center NASA Greenbelt, MD 20771	301/286-2000
JSC	Johnson Space Center NASA Houston, TX 77058	713/483-3111
KSC	Kennedy Space Center NASA Kennedy Space Center, FL 32899	407/867-7110
LARC	Langley Research Center NASA Hampton, VA 23665	804/865-2000
LERC	Lewis Research Center NASA 2100 Brookpark Road Cleveland, OH 44135	216/433-4000
MSFC	Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812	205/544-2121
SSC	Stennis Space Center NASA Stennis Space Center, MS 39529	601/688-2211
HQ	NASA Headquarters Washington, DC 20546	202/453-1000

The abbreviation for NASA Headquarters, HQ, usually carries a suffix, for example HQ-EB, which denotes a particular office code and general area of responsibility. A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) operates a government-wide system (CASE) for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE Fields, used in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in the Appendix.

IV. Cross-Index

The cross-indexed Appendix provides rapid access to all projects in a particular area of endeavor, as defined by the CASE Fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field. Entries are related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant/contract/cooperative agreement anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in the Appendix, the associated accession number allows ready location of the full description in the body of the report.

NASA'S UNIVERSITY PROGRAM

ALABAMA

NAG 5-578	Alabama A&M University	1000	Determination of cosmic rays induced single event upsets in semiconductor devices
<i>Period</i>	<i>Obligations</i>		
08/01/85-09/30/87	FY88:	TOTAL: \$101,525	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
McQuire, S.	GSFC/Stossinopoulos, E.	45-Elec Engr	
NAG 8-23	Alabama A&M University	1001	Research and training in intelligent robotic systems
<i>Period</i>	<i>Obligations</i>		
02/09/84-09/30/88	FY88:	TOTAL: \$656,343	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hurford, G. J.	MSFC/Randall, J. L.	46-Mech Engr	
Prince, T. A.	MSFC/Walker, R. J.		
Borelli, M.			
NAG 8-24	Alabama A&M University	1002	Advanced interactive analytical integration and mission planning database for the space station
<i>Period</i>	<i>Obligations</i>		
02/09/84-04/23/89	FY88:	TOTAL: \$197,995	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Saha, H.	MSFC/Randall, J. L.	22-Computer Science	
	MSFC/Walker, R. J.		
NAG 8-27	Alabama A&M University	1003	High energy cosmic ray interactions in emulsion
<i>Period</i>	<i>Obligations</i>		
08/22/84-06/14/89	FY88: \$65,951	TOTAL: \$186,158	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
McGuire, S. C.	MSFC/Randall, J. L.	13-Physics	
	MSFC/Walker, R. L.		
NAG 8-29	Alabama A&M University	1004	Surface roughness of fiat and curved optical surfaces
<i>Period</i>	<i>Obligations</i>		
06/01/85-10/05/88	FY88: \$119,496	TOTAL: \$612,735	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Venkateswarty, P.	MSFC/Randall, J. L.	46-Mech Engr	
	MSFC/Walker, R. J.		
NAG 8-36	Alabama A&M University	1005	Research on coded mask telescope
<i>Period</i>	<i>Obligations</i>		
09/18/85-07/16/88	FY88:	TOTAL: \$36,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
George, M. C.	MSFC/Darbro, W.	11-Astronomy	
	MSFC/Walker, R. J.		
NAG 8-45	Alabama A&M University	1006	Ellipsometric measurement of liquid
<i>Period</i>	<i>Obligations</i>		
09/26/85-12/24/88	FY88:	TOTAL: \$41,496	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Chong, K.	MSFC/Randall, J. L.	13-Physics	
	MSFC/Walker, R. J.		
NAG 8-64	Alabama A&M University	1007	Low thrust viscous nozzle flow fields prediction
<i>Period</i>	<i>Obligations</i>		
04/28/86-11/26/88	FY88:	TOTAL: \$110,356	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Matthaeus, W. H.	MSFC/Randall, J. L.	13-Physics	
	MSFC/Walker, R. J.		
NAG 8-76	Alabama A&M University	1008	Microstructural characteristics of Ni based superalloys at high temperature
<i>Period</i>	<i>Obligations</i>		
10/01/86-01/28/89	FY88: \$112,861	TOTAL: \$202,861	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lal, R. B.	MSFC/Randall, J. L.	13-Physics	
Aggarwal, M. D.	MSFC/Walker, R. J.		
NAG 8-90	Alabama A&M University	1009	Determination of trace elements in triglycine sulfate solutions
<i>Period</i>	<i>Obligations</i>		
05/01/87-01/15/89	FY88:	TOTAL: \$98,192	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tadros, S. H.	MSFC/Randall, J. L.	43-Chem Engr	
	MSFC/Walker, R. J.		
NAG 8-97	Alabama A&M University	1010	Mechanism of chromosomal agerration production in repair deficient human cells
<i>Period</i>	<i>Obligations</i>		
01/28/88-01/28/89	FY88: \$107,000	TOTAL: \$107,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kale, R.	MSFC/Randall, J. L.	59-Life Sci, NEC	
	MSFC/Walker, R. J.		
NAG 8-107	Alabama A&M University	1011	Nonlinear properties of organic materials in lead-tin fluorophosphate glasses and thin films/ polymer composites
<i>Period</i>	<i>Obligations</i>		
08/22/88-08/21/89	FY88: \$339,225	TOTAL: \$339,225	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
George, M. C.	MSFC/Randall, J. L.	13-Physics	
	MSFC/Walker, R. J.		
NAG 9-246	Alabama A&M University	1012	Genetic effects of heavy ions in drosophila
<i>Period</i>	<i>Obligations</i>		
07/01/87-01/01/89	FY88:	TOTAL: \$125,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kale, P.	JSC/Nachtwey, D. S.	51-Biological Sci	
NAGW 1067	Alabama A&M University	1013	Model of Jovian F region ionosphere
<i>Period</i>	<i>Obligations</i>		
02/01/87-01/31/88	FY88:	TOTAL: \$14,938	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tan, A.	HQ-EL/Fox, K.	31-Atmos Sci	
	HQ-EL/Quaide, W. L.		
NAS 8-32945	Alabama A&M University	1014	Solution growth of crystals in zero gravity experiment for materials processing in space
<i>Period</i>	<i>Obligations</i>		
03/05/78-02/28/88	FY88:	TOTAL: \$1,262,883	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lal, R. B.	MSFC/Ruff, R.	19-Phys Sci, NEC	
	MSFC/Fogle, V.		

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAS 8-36146	Auburn University	1031			
Measurement of damping of graphite epoxy material					
<i>Period</i>		<i>Obligations</i>			
08/06/84-12/31/88	FY88:	TOTAL: \$248,337			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Crocker, M. J.	MSFC/Guest, S. H.	46-Mech Engr			
	MSFC/Reed, D. K.				
NAS 8-36147	Auburn University	1032			
Improved internal ballistic analysis and design procedures for solid rocket motors					
<i>Period</i>		<i>Obligations</i>			
10/05/84-12/15/87	FY88:	TOTAL: \$140,438			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Storzini, R. H.	MSFC/Martin, C. L.	49-Engr, NEC			
Jenkins, R. M.	MSFC/Funkhouser, J. O.				
NAS 8-36288	Auburn University	1033			
Stress analysis of the space telescope focal plane structure joint					
<i>Period</i>		<i>Obligations</i>			
09/13/84-12/31/87	FY88:	TOTAL: \$144,086			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Foster, W. A.	MSFC/Dozier, J.	49-Engr, NEC			
Shoemaker, W. L.	MSFC/Hollis, R.				
NAS 8-36471	Auburn University	1034			
Surface analysis of Solar Maximum Mission and long duration exposure facility specimen					
<i>Period</i>		<i>Obligations</i>			
03/26/85-02/28/89	FY88: \$60,000	TOTAL: \$163,992			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fromhold, A. T.	MSFC/Caruth, M. R.	13-Physics			
Williams, J. R.	MSFC/Whitaker, A. F.				
Dancshvar, K.					
NAS 8-36654	Auburn University	1035			
Hydrogen induced fracture characteristics of nickel base superalloys					
<i>Period</i>		<i>Obligations</i>			
10/29/86-10/29/88	FY88:	TOTAL: \$76,302			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Crocker, M. J.	MSFC/Parr, R. A.	31-Atmos Sci			
	MSFC/Bhat, B. N.				
NAS 8-37232	Auburn University	1036			
Characterization of weld radiograph enigma phenomena in 2219 T87 aluminum					
<i>Period</i>		<i>Obligations</i>			
09/14/87-09/14/89	FY88:	TOTAL: \$45,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jemian, W. A.	MSFC/Nunes, A.	19-Phys Sci, NEC			
	MSFC/Bayless, E.				
NCC 3-83	Auburn University	1037			
Kinetics and mechanisms of materials degradation and surface behavior in simulated space environments in situ compositional and structural studies using electron spectroscopic and electron					
<i>Period</i>		<i>Obligations</i>			
04/01/87-03/30/89	FY88: \$50,000	TOTAL: \$100,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tatarchuk, B. J.	LERC/Gulino, D. A.	19-Phys Sci, NEC			
Baker, R. T.	LERC/Banks, B. A.				
NCC 8-14	Auburn University	1038			
Development of a program analysis environment for ADA					
<i>Period</i>		<i>Obligations</i>			
05/27/88-05/26/89	FY88: \$115,000	TOTAL: \$115,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, D. B.	MSFC/Wolfsberger, J. W.	22-Computer Science			
	MSFC/White, C. H.				
NGT 00-050-084	Auburn University	1039			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/15/86-09/14/88	FY88: \$18,000	TOTAL: \$33,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jang, B.	HQ-LE/Owens, F. C.	47-Materials Engr			
NGT 00-050-133	Auburn University	1040			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Barnes, P. A.	HQ-XE/Owens, F. C.	13-Physics			
NGT 00-050-353	Auburn University	1041			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tatarchuk, B. J.	HQ-XE/Owens, F. C.	99-Multi-Discip			
NGT 00-050-354	Auburn University	1042			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tzeng, Y.	HQ-XE/Owens, F. C.	45-Elec Engr			
NGT 00-050-361	Auburn University	1043			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Crocker, M. J.	HQ-XE/Owens, F. C.	46-Mech Engr			
Raju, P. K.					
NGT 00-050-374	Auburn University	1044			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tatarchuk, B. J.	HQ-XE/Owens, F. C.	43-Chem Engr			
NGT 00-070-094	Auburn University	1045			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/16/88-09/15/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tzeng, Y.	HQ-XE/Owens, F. C.	45-Elec Engr			
NGT 01-003-801	Auburn University	1046			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/16/85-06/15/88	FY88:	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tatarchuk, B. J.	HQ-LE/Owens, F. C.	43-Chem Engr			

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAG 1-447 Tuskegee Institute 1047
 Characterization of polymer adhesives for composites
Period Obligations
 02/01/84-08/31/88 FY88: TOTAL: \$215,368
Prin. Invest. NASA Tech. Officer CASE Category
 Dillon, I. G. LARC/Johnson, W. S. 47-Materials Engr
 Jeelani, S. LARC/Everett, R. A., Jr.
 Ludwick, A.

NAG 8-77 Tuskegee Institute 1055
 Simulated fluid dynamics studies in the highly turbulent regime of the
 Lox post
Period Obligations
 12/04/86-03/05/90 FY88: TOTAL: \$107,682
Prin. Invest. NASA Tech. Officer CASE Category
 Harris, V. G. MSFC/Randall, J. L. 13-Physics
 MSFC/Walker, R. J.

NAG 1-742 Tuskegee Institute 1048
 Structure and properties of FM73 and related epoxy adhesives
Period Obligations
 03/23/87-08/31/88 FY88: TOTAL: \$123,385
Prin. Invest. NASA Tech. Officer CASE Category
 Jeelani, S. LARC/Johnson, W. S. 47-Materials Engr
 Ludwick, A. G. LARC/Everett, R. A.

NAG10-24 Tuskegee Institute 1056
 Sweet potato production in soilless culture for controlled environmental
 life support systems
Period Obligations
 10/28/85-03/30/89 FY88: \$200,000 TOTAL: \$600,000
Prin. Invest. NASA Tech. Officer CASE Category
 Hill, W. A. KSC/Knott, W. M. 39-Env Sci, NEC

NAG 3-726 Tuskegee Institute 1049
 Electrode erosion in low power constructed arc-jet thrusters
Period Obligations
 05/01/86-06/30/89 FY88: TOTAL: \$64,939
Prin. Invest. NASA Tech. Officer CASE Category
 Ray, P. R. LERC/Hardy, T. L. 49-Engr, NEC

NAG10-31 Tuskegee Institute 1057
 Permeability of polymeric materials to condensable gases and organic
 liquids
Period Obligations
 03/07/86-03/07/89 FY88: \$67,908 TOTAL: \$161,187
Prin. Invest. NASA Tech. Officer CASE Category
 Vahdat, N. KSC/Bryan, C. J. 12-Chemistry

NAG 8-20 Tuskegee Institute 1050
 Research support for the school of engineering
Period Obligations
 07/20/83-06/30/89 FY88: \$49,480 TOTAL: \$682,075
Prin. Invest. NASA Tech. Officer CASE Category
 Ray, P. K. MSFC/Randall, J. L. 41-Aero Engr
 Kumar, G. N. MSFC/Walker, R. J.

NCA 2-127 Tuskegee Institute 1058
 Pressure gradient effects in 3D boundary layers
Period Obligations
 05/15/86-12/31/87 FY88: TOTAL: \$7,000
Prin. Invest. NASA Tech. Officer CASE Category
 Hebbar, S. K. ARC/Driver, D. M. 41-Aero Engr
 ARC/Rubessin, M. W.

NAG 8-38 Tuskegee Institute 1051
 Characterization of fiber composites
Period Obligations
 09/19/85-09/19/87 FY88: TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Jeelani, S. MSFC/Penn, B. G. 47-Materials Engr
 MSFC/Cothran, E.

NCC 2-12 Tuskegee Institute 1059
 Morphometrics of cellular damage in mice receiving whole body
 irradiation
Period Obligations
 08/01/79-10/31/86 FY88: TOTAL: \$352,000
Prin. Invest. NASA Tech. Officer CASE Category
 Sapp, W. J. ARC/Philpott, D. E. 54-Env Biology

NAG 8-40 Tuskegee Institute 1052
 Effects of interactions of protons, electrons and corona discharges on
 the electrical insulating materials used on solar cell arrays
Period Obligations
 09/19/85-12/30/88 FY88: TOTAL: \$172,550
Prin. Invest. NASA Tech. Officer CASE Category
 Doreswamy, C. V. MSFC/Randall, J. L. 45-Elec Engr
 MSFC/Walker, R. W.

NCC 2-455 Tuskegee Institute 1060
 Morphological examination of heart and testes tissues from hypokinetic
 animals
Period Obligations
 11/01/86-10/31/88 FY88: \$69,281 TOTAL: \$122,661
Prin. Invest. NASA Tech. Officer CASE Category
 Sapp, W. J. ARC/Philpott, D. E. 51-Biological Sci

NAG 8-44 Tuskegee Institute 1053
 Determination of residual stress distribution in machining quenched and
 tempered AiSi 4130 steel
Period Obligations
 09/23/85-04/17/88 FY88: TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
 Jeelani, S. MSFC/Randall, J. 47-Materials Engr
 MSFC/Walker, R. J.

NGT 00-050-130 Tuskegee Institute 1061
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Jeelani, S. HQ-LE/Owens, F. C. 46-Mech Engr

NAG 8-68 Tuskegee Institute 1054
 Characterization of high cycle fatigue behavior of selected materials
Period Obligations
 12/04/86-09/03/88 FY88: TOTAL: \$127,669
Prin. Invest. NASA Tech. Officer CASE Category
 Jeelani, S. MSFC/Randall, I. L. 13-Physics
 MSFC/Walker, R. J.

NGT 01-005-751 Tuskegee Institute 1062
 NASA graduate student researchers program
Period Obligations
 06/01/84-05/31/87 FY88: TOTAL: \$51,000
Prin. Invest. NASA Tech. Officer CASE Category
 Jeelani, S. HQ-LB/Owens, F. C. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAG 8-72 University of Alabama - Birmingham 1063
 Low gravity containerless processing of immiscible and glass forming alloys using the MSFC 100 meter drop tube
Period *Obligations*
 08/20/86-08/19/88 FY88: TOTAL: \$80,763
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Andrews, J. B. MSFC/Robinson, M. B. 47-Materials Engr
 MSFC/Bass, B. G.

NAG 8-600 University of Alabama - Birmingham 1064
 A proposal to develop a system for optically monitoring refractive index studies of protein crystal growth experiments
Period *Obligations*
 09/15/86-12/31/87 FY88: TOTAL: \$20,637
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rosenblum, W. M. MSFC/Herrmann, F. 51-Biological Sci

NAG 8-640 University of Alabama - Birmingham 1065
 The influence of gravity on solidified microstructures in hypermonstectic alloys and dispersion strengthened composites
Period *Obligations*
 06/01/87-12/31/88 FY88: TOTAL: \$24,971
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Andrews, J. B. MSFC/Curreri, P. A. 47-Materials Engr
 MSFC/Strauss, E. M.

NAG 8-685 University of Alabama - Birmingham 1066
 Microstructural characterization of II VI semiconducting alloys
Period *Obligations*
 09/01/87-08/31/89 FY88: \$3,666 TOTAL: \$39,541
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Andrews, R. N. MSFC/Szofran, F. R. 13-Physics
 MSFC/Cobb, S. D.

NAG 8-743 University of Alabama - Birmingham 1067
 Development of a compact multimode optical device for monitoring protein crystal growth
Period *Obligations*
 08/01/88-07/31/89 FY88: \$74,473 TOTAL: \$74,473
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rosenblum, W. E. MSFC/Snyder, R. 49-Engr, NEC

NAGW 749 University of Alabama - Birmingham 1068
 Cosmic ices and molecules-a laboratory investigation
Period *Obligations*
 06/01/85-02/28/89 FY88: \$24,000 TOTAL: \$100,518
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wdowiak, T. J. HQ-EZ/Gillett, F. C. 13-Physics
 HQ-EZ/Weiler, E. J.

NAGW 813 University of Alabama - Birmingham 1069
 The commercial development of space in protein crystal growth
Period *Obligations*
 09/15/85-10/31/88 FY88: TOTAL: \$2,127,496
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Brigg, C. E. HQ-IC/Oran, W. A. 51-Biological Sci
 Delucas, L. J. HQ-IC/Brown, J. A.

NAS 8-36461 University of Alabama - Birmingham 1070
 Influence of a magnetic field during solidification of MAR-M246 + HF superalloy
Period *Obligations*
 02/24/86-12/31/87 FY88: TOTAL: \$20,984
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Andrews, J. B. MSFC/Johnston, M. H. 47-Materials Engr
 MSFC/Parr, R. A.

NAS 8-36611 University of Alabama - Birmingham 1071
 Protein crystal growth in a microgravity environment
Period *Obligations*
 07/25/85-10/31/88 FY88: \$335,000 TOTAL: \$1,385,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bugg, C. E. MSFC/Herren, B. 51-Biological Sci
 Delucas, L. J.
 Baird, J. K.

NAS 8-36736 University of Alabama - Birmingham 1072
 Computed tomography of solid rocket nozzle composite materials
Period *Obligations*
 09/17/85-09/16/86 FY88: \$14,100 TOTAL: \$22,550
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Breland, N. D. MSFC/Hediger, L. 47-Materials Engr
 MSFC/Knadler, J.

NGR 01-010-001 University of Alabama - Birmingham 1073
 Model for origin and coevolution of genetic code and the process of protein synthesis
Period *Obligations*
 05/09/73-11/30/88 FY88: \$81,000 TOTAL: \$934,974
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lacey, J. C., Jr. HQ-EB/Rummel, J. D. 12-Chemistry
 HQ-EB/Avernea, M.

NGT 00-050-040 University of Alabama - Birmingham 1074
 NASA graduate student researchers program
Period *Obligations*
 06/10/86-05/31/89 FY88: \$18,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Andrews, J. HQ-LE/Owens, F. C. 47-Materials Engr

NGT 02-002-800 University of Alabama - Birmingham 1075
 NASA graduate student researchers program
Period *Obligations*
 06/06/85-06/05/88 FY88: TOTAL: \$69,080
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McAnulty, M. HQ-LE/Owens, F. C. 22-Computer Science

NGT 02-002-802 University of Alabama - Birmingham 1076
 NASA graduate student researchers program
Period *Obligations*
 06/01/85-05/31/88 FY88: TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Agesti, D. G. HQ-LE/Owens, F. C. 13-Physics

NAG 1-733 University of Alabama - Huntsville 1077
 Morphological stability and fluid dynamics of vapor crystal growth
Period *Obligations*
 01/12/87-01/11/88 FY88: TOTAL: \$56,761
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rosenberger, F. E. LARC/Fripp, A. L. 47-Materials Engr

NAG 5-500 University of Alabama - Huntsville 1078
 Analysis interpretation and role of ultra-violet radiation solar flow
Period *Obligations*
 02/01/85-01/31/90 FY88: \$81,566 TOTAL: \$244,932
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Emslie, A. G. GSFC/Bullock, G. D. 13-Physics
 GSFC/Gurman, J. B.

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAG 5-634 University of Alabama - Huntsville 1079
 Rocket investigations of rapidly varying space plasma phenomena
Period *Obligations*
 02/01/86-11/30/88 FY88: \$199,999 TOTAL: \$533,028
Prin. Invest. NASA Tech. Officer CASE Category
 Torbert, R. B. GSFC/Early, L. J. 19-Phys Sci, NEC
 GSFC/Pless, R. H.

NAG 8-56 University of Alabama - Huntsville 1086
 Development of Faraday ring ammeter
Period *Obligations*
 03/31/86-09/29/88 FY88: TOTAL: \$324,616
Prin. Invest. NASA Tech. Officer CASE Category
 Torbert, R. B. MSFC/Chappel, C. R. 13-Physics
 MSFC/Fields, S. A.

NAG 5-986 University of Alabama - Huntsville 1080
 Flight instrument and scientific constraints on the comet rendezvous asteroid flyby mission
Period *Obligations*
 09/01/87-02/01/90 FY88: \$24,673 TOTAL: \$64,668
Prin. Invest. NASA Tech. Officer CASE Category
 Torbert, R. B. GSFC/Scudder, J. D. 41-Aero Engr
 GSFC/Ogilvie, K. W.

NAG 8-58 University of Alabama - Huntsville 1087
 Investigation of lunar energy space plasmas
Period *Obligations*
 03/31/86-04/30/89 FY88: \$344,588 TOTAL: \$895,122
Prin. Invest. NASA Tech. Officer CASE Category
 Wu, S. T. MSFC/Chappel, C. R. 13-Physics
 Horwitz, J. L. MSFC/Fields, S. A.

NAG 8-32 University of Alabama - Huntsville 1081
 Study of the production of some superconducting and magnetic materials of solidification in the drop tower
Period *Obligations*
 06/01/85-09/30/87 FY88: TOTAL: \$133,635
Prin. Invest. NASA Tech. Officer CASE Category
 Wu, M. K. MSFC/Curreri, P. A. 13-Physics
 MSFC/Strauss, E. M.

NAG 8-60 University of Alabama - Huntsville 1088
 Compact imaging spectrometer for induced emissions
Period *Obligations*
 03/31/86-08/14/89 FY88: TOTAL: \$99,996
Prin. Invest. NASA Tech. Officer CASE Category
 Lundquist, C. A. MSFC/Fields, S. A. 12-Chemistry
 MSFC/Cranie, G. M.

NAG 8-63 University of Alabama - Huntsville 1089
 Turbulence and gravity waves in the tropical upper atmosphere
Period *Obligations*
 07/30/86-07/29/89 FY88: \$56,283 TOTAL: \$160,826
Prin. Invest. NASA Tech. Officer CASE Category
 Hung, R. J. MSFC/Johnson, D. 31-Atmos Sci
 MSFC/Spray, C.

NAG 8-35 University of Alabama - Huntsville 1082
 Numerical studies of the surface tension effect on the interface of a rotating fluid
Period *Obligations*
 08/15/85-08/08/89 FY88: \$51,987 TOTAL: \$92,798
Prin. Invest. NASA Tech. Officer CASE Category
 Hung, R. J. MSFC/Leslie, F. 13-Physics
 MSFC/Spray, C.

NAG 8-65 University of Alabama - Huntsville 1090
 Measurement of direct electron pairs in emulsions exposed to relativistic heavy ions
Period *Obligations*
 04/15/86-02/07/89 FY88: TOTAL: \$74,993
Prin. Invest. NASA Tech. Officer CASE Category
 Gregory, J. C. MSFC/Parnoll, T. A. 13-Physics
 MSFC/Strauss, E. M.

NAG 8-52 University of Alabama - Huntsville 1083
 Flare processes in the lower solar atmosphere
Period *Obligations*
 10/30/85-12/17/88 FY88: TOTAL: \$116,000
Prin. Invest. NASA Tech. Officer CASE Category
 Emslie, A. G. MSFC/Davis, J. M. 11-Astronomy
 Wilson, H. J. MSFC/Fields, S. A.
 Lundquist, C. A.

NAG 8-67 University of Alabama - Huntsville 1091
 A direct time of flight measurement of the one way velocity of light
Period *Obligations*
 05/23/86-02/12/89 FY88: TOTAL: \$116,469
Prin. Invest. NASA Tech. Officer CASE Category
 Torr, D. G. MSFC/Decher, R. 12-Chemistry
 MSFC/Eby, P. B.

NAG 8-53 University of Alabama - Huntsville 1084
 Quantification of observed flare parameters in relation to shear index and verification of MHD models for flare prediction
Period *Obligations*
 03/26/86-05/25/89 FY88: \$71,775 TOTAL: \$270,317
Prin. Invest. NASA Tech. Officer CASE Category
 Wu, S. T. MSFC/Reichmann, E. J. 31-Atmos Sci
 Smith, J. B. MSFC/Fields, S.

NAG 8-69 University of Alabama - Huntsville 1092
 Transparent metal model study of cellulay growth in monotectic alloys
Period *Obligations*
 06/03/86-02/02/88 FY88: TOTAL: \$34,999
Prin. Invest. NASA Tech. Officer CASE Category
 Kaukler, W. F. MSFC/Curreri, P. A. 31-Atmos Sci
 MSFC/Strauss, E. M.

NAG 8-54 University of Alabama - Huntsville 1085
 Low-energy plasma environment in the inner magnetosphere
Period *Obligations*
 01/28/86-01/27/88 FY88: TOTAL: \$84,877
Prin. Invest. NASA Tech. Officer CASE Category
 Horwitz, J. L. MSFC/Chappell, C. R. 13-Physics
 Wilson, H. J. MSFC/Fields, S.

NAG 8-79 University of Alabama - Huntsville 1093
 Gravity probe B research
Period *Obligations*
 09/29/86-09/02/88 FY88: \$25,000 TOTAL: \$159,378
Prin. Invest. NASA Tech. Officer CASE Category
 Karr, G. R. MSFC/Decher, R. 31-Atmos Sci
 Cost, T. L. MSFC/Urban, E.

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NAG 8-82 University of Alabama - Huntsville 1094
 Investigation of the atmosphere of the outer planets
Period *Obligations*
 11/18/86-11/17/89 FY88: TOTAL: \$130,519
Prin. Invest. NASA Tech. Officer CASE Category
 Comfort, R. H. MSFC/Waite, J. H. 11-Astronomy
 MSFC/Fields, S. A.

NAG 8-98 University of Alabama - Huntsville 1102
 Novel protein crystal growth technology proof of concept
Period *Obligations*
 12/01/87-11/30/88 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
 Nyce, T. A. MSFC/Kroes, R. L. 13-Physics
 Rosenberger, F.

NAG 8-83 University of Alabama - Huntsville 1095
 Computer modeling of inversion layer MOS solar cells and arrays
Period *Obligations*
 10/03/86-06/02/89 FY88: TOTAL: \$14,994
Prin. Invest. NASA Tech. Officer CASE Category
 Olson, L. H. MSFC/Edge, T. M. 22-Computer Science
 MSFC/Norton, A.

NAG 8-100 University of Alabama - Huntsville 1103
 Space vehicle contamination study
Period *Obligations*
 05/05/88-07/05/89 FY88: \$106,515 TOTAL: \$106,515
Prin. Invest. NASA Tech. Officer CASE Category
 Torr, D. G. MSFC/Fields, S. A. 41-Aero Engr
 MSFC/Reed, L. S.

NAG 8-85 University of Alabama - Huntsville 1096
 Modelling of solar magnetic field and prominence structures
Period *Obligations*
 10/01/86-09/30/88 FY88: TOTAL: \$34,994
Prin. Invest. NASA Tech. Officer CASE Category
 Wu, S. T. MSFC/Hagyard, M. J. 13-Physics
 MSFC/Fields, S. A.

NAG 8-102 University of Alabama - Huntsville 1104
 Combustion diagnostics study of temperature and density profiles for water vapor and hydroxyl radicals
Period *Obligations*
 04/15/88-04/14/89 FY88: \$54,581 TOTAL: \$54,581
Prin. Invest. NASA Tech. Officer CASE Category
 Hung, R. J. MSFC/Eskridge, R. H. 13-Physics
 MSFC/Bachtel, F. D.

NAG 8-86 University of Alabama - Huntsville 1097
 Ultraviolet images for the ISTP mission
Period *Obligations*
 12/08/86-12/08/87 FY88: TOTAL: \$35,000
Prin. Invest. NASA Tech. Officer CASE Category
 Torr, D. G. MSFC/Fields, S. H. 45-Elec Engr
 MSFC/Strauss, E. M.

NAG 8-108 University of Alabama - Huntsville 1105
 Large area inversion layer metal insulator semiconductor il mis solar cells and arrays
Period *Obligations*
 05/25/88-05/24/90 FY88: \$24,996 TOTAL: \$24,996
Prin. Invest. NASA Tech. Officer CASE Category
 Ho, F. D. MSFC/Edge, T. 45-Elec Engr
 MSFC/Norton, O. A.

NAG 8-89 University of Alabama - Huntsville 1098
 Fourier transform infrared and Raman spectroscopic characterization of homogeneous solution concentration gradients near a container wall at different temperatures
Period *Obligations*
 04/14/87-04/13/89 FY88: \$25,000 TOTAL: \$51,000
Prin. Invest. NASA Tech. Officer CASE Category
 Loo, B. H. MSFC/Frazier, D. O. 13-Physics
 MSFC/Facemire, B. R.

NAG 8-117 University of Alabama - Huntsville 1106
 Hubble space telescope design engineering knowledge base HSTDEK
Period *Obligations*
 09/12/88-09/12/89 FY88: \$48,474 TOTAL: \$48,474
Prin. Invest. NASA Tech. Officer CASE Category
 Johannes, J. D. MSFC/Freeman, M. S. 22-Computer Science
 MSFC/Franks, G.

NAG 8-92 University of Alabama - Huntsville 1099
 Comprehensive numerical schemes for predicting evaporating gas droplets flow processes of a liquid fueled combustor
Period *Obligations*
 06/24/87-12/23/89 FY88: \$25,997 TOTAL: \$110,774
Prin. Invest. NASA Tech. Officer CASE Category
 Chen, C. P. MSFC/Bachtel, F. D. 49-Engr, NEC
 MSFC/Hutt, J. J.

NAG 8-488 University of Alabama - Huntsville 1107
 Coordinated study of solar terrestrial payloads on space station
Period *Obligations*
 07/10/84-07/15/88 FY88: TOTAL: \$49,995
Prin. Invest. NASA Tech. Officer CASE Category
 Wu, S. T. MSFC/Roberts, W. T. 39-Env Sci, NEC

NAG 8-95 University of Alabama - Huntsville 1100
 Evaluation of Space Shuttle main engine computational fluid dynamics computer codes
Period *Obligations*
 09/22/87-09/21/89 FY88: \$50,000 TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
 Chung, T. J. MSFC/Willhold, G. A. 43-Chem Engr
 MSFC/Eldridge, R.

NAG 8-511 University of Alabama - Huntsville 1108
 Verification of the critical point wetting theory using microgravity
Period *Obligations*
 01/18/85-07/18/89 FY88: TOTAL: \$99,997
Prin. Invest. NASA Tech. Officer CASE Category
 Kaukler, W. F. MSFC/Black, R. E. 21-Mathematics

NAG 8-96 University of Alabama - Huntsville 1101
 Silicon inversion layer IL MOS solar cells and arrays
Period *Obligations*
 09/17/87-09/16/89 FY88: TOTAL: \$24,994
Prin. Invest. NASA Tech. Officer CASE Category
 Ho, F. D. MSFC/Edge, T. M. 45-Elec Engr
 MSFC/Norton, A.

NAG 8-546 University of Alabama - Huntsville 1109
 Study OMV docking information
Period *Obligations*
 07/29/85-07/27/87 FY88: TOTAL: \$39,255
Prin. Invest. NASA Tech. Officer CASE Category
 Rogers, J. G. MSFC/Hale, J. P. 49-Engr, NEC
 MSFC/Washington, P.

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAG 8-587 University of Alabama - Huntsville 1110
The feasibility and design of optical sensors for modal control
Period *Obligations*
09/01/86-05/31/87 FY88: TOTAL: \$24,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greene, M. E. MSFC/Howell, J. T. 13-Physics

NAG 8-599 University of Alabama - Huntsville 1111
Optical monitoring of protein crystal growth on the space station
Period *Obligations*
10/01/86-03/31/88 FY88: TOTAL: \$59,360
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Choudry, A. MSFC/Herrmann, F. 51-Biological Sci

NAG 8-627 University of Alabama - Huntsville 1112
Development of computerized analysis for solid propellant combustion
Period *Obligations*
05/05/87-12/31/88 FY88: TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chung, T. J. MSFC/Martin, C. 29-Math/Computer, NEC

NAG 8-629 University of Alabama - Huntsville 1113
Shuttle rocket booster computational fluid dynamics
Period *Obligations*
05/07/87-05/07/88 FY88: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chung, T. J. MSFC/Tucker, P. K. 46-Mech Engr

NAG 8-639 University of Alabama - Huntsville 1114
The ultraviolet imager for the ISTP mission
Period *Obligations*
05/15/87-05/14/88 FY88: TOTAL: \$90,004
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Torr, D. MSFC/Fields, S. A. 99-Multi-Discip

NAG 8-641 University of Alabama - Huntsville 1115
Application of artificial intelligence to space station
Period *Obligations*
10/01/87-09/30/88 FY88: TOTAL: \$276,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ford, D. R. MSFC/Wolfsberger, J. W. 29-Math/Computer, NEC

NAG 8-642 University of Alabama - Huntsville 1116
Data reduction of knowledge based system
Period *Obligations*
06/01/87-05/31/89 FY88: \$94,215 TOTAL: \$164,139
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ford, D. R. MSFC/Weeks, D. 22-Computer Science
MSFC/Walls, B. K.

NAG 8-654 University of Alabama - Huntsville 1117
Analysis and modeling of summertime connective cloud and precipitation structure over the Southeastern United States
Period *Obligations*
09/15/87-06/14/89 FY88: \$89,991 TOTAL: \$154,988
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knupp, K. R. MSFC/Robertson, F. R. 31-Atmos Sci

NAG 8-682 University of Alabama - Huntsville 1118
Coordination of advanced solar observatory science working group for the study of instrument accommodation and operational requirements on space station
Period *Obligations*
08/01/87-10/31/88 FY88: \$45,501 TOTAL: \$45,501
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. MSFC/Roberts, W. T. 13-Physics

NAG 8-684 University of Alabama - Huntsville 1119
Process modelling for space station experiments
Period *Obligations*
10/01/87-09/30/90 FY88: TOTAL: \$488,228
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenberger, F. MSFC/Bass, B. G. 13-Physics
MSFC/Newmann, R. J.

NAG 8-686 University of Alabama - Huntsville 1120
Development of an endoscopic probe for radial metrology
Period *Obligations*
09/22/87-06/21/88 FY88: TOTAL: \$190,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gilbert, J. A. MSFC/Richards, J. S. 49-Engr, NEC

NAG 8-692 University of Alabama - Huntsville 1121
Temperature gradients in the plasmasphere
Period *Obligations*
12/01/87-11/30/88 FY88: \$27,428 TOTAL: \$27,428
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Comfort, R. H. MSFC/Chandler, M. O. 13-Physics

NAG 8-698 University of Alabama - Huntsville 1122
Environmental control medical support team
Period *Obligations*
12/01/87-12/07/88 FY88: \$95,201 TOTAL: \$95,201
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crump, W. J. MSFC/Hueter, U. 59-Life Sci, NEC

NAG 8-704 University of Alabama - Huntsville 1123
Fluid dynamics and low gravity effects of chemical vapor deposition
Period *Obligations*
02/22/88-02/22/89 FY88: \$95,410 TOTAL: \$95,410
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenberger, F. E. MSFC/Lehoczy, S. L. 32-Geological Sci

NAG 8-706 University of Alabama - Huntsville 1124
OMV/man systems simulation integration
Period *Obligations*
02/10/88-02/09/89 FY88: \$83,679 TOTAL: \$83,679
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rogers, J. G. MSFC/Hale, J. P. 49-Engr, NEC

NAG 8-708 University of Alabama - Huntsville 1125
High temperature modeling and performance verifications
Period *Obligations*
03/01/88-03/01/89 FY88: \$73,000 TOTAL: \$73,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, J. E. MSFC/Poorman, R. M. 19-Phys Sci, NEC
MSFC/Yates, I. C.

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAG 8-711 University of Alabama - Huntsville 1126
Nucleation of growth control in protein
Period *Obligations*
03/14/88-03/14/89 FY88: \$98,805 TOTAL: \$98,805
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenberger, F. E. MSFC/Snyder, R. 39-Env Sci, NEC

NAGW 847 University of Alabama - Huntsville 1134
Personnel occupied woven envelope robot (power)
Period *Obligations*
12/01/85-06/30/88 FY88: TOTAL: \$200,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wessling, F. C. HQ-E/Rosendhal, J. D. 49-Engr, NEC
HQ-EP/Konkel, R. M.

NAG 8-717 University of Alabama - Huntsville 1127
Artificial intelligence to MSFC mission planning for space station
Period *Obligations*
06/01/88-02/30/89 FY88: \$80,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ford, D. ARC/Lindberg, J. P. 49-Engr, NEC
Floyd, S. ARC/Causey, W. E.

NAGW 922 University of Alabama - Huntsville 1135
Continued research Spacelab 1 TSO data
Period *Obligations*
08/01/86-07/31/88 FY88: TOTAL: \$136,410
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Torr, D. G. HQ-EE/Theis, R. F. 13-Physics
HQ-EE/Eastman, T. E.

NAG 8-720 University of Alabama - Huntsville 1128
Network system and status electrical power system breadboard
Period *Obligations*
06/01/88-05/31/89 FY88: \$72,176 TOTAL: \$72,176
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McKee, J. W. MSFC/Whitehead, N. D. 22-Computer Science

NAGW 996 University of Alabama - Huntsville 1136
A simple three dimensional dynamical model of the thermal plasma in the plasmasphere
Period *Obligations*
01/01/87-12/31/88 FY88: \$35,000 TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Richards, P. G. HQ-ES/Mellott, M. M. 13-Physics
Torr, D. G. HQ-ES/Parks, G. K.

NAG 8-724 University of Alabama - Huntsville 1129
Vibration technology sensitivity of selected classes of space experiments to residual accelerations
Period *Obligations*
07/01/88-06/30/89 FY88: \$134,583 TOTAL: \$134,583
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alexander, J. I. MSFC/Morroni, C. A. 49-Engr, NEC
MSFC/Schafer, C. F.

NAGW 1117 University of Alabama - Huntsville 1137
Stip symposium on physical interpretation of solar interplanetary and cometary intervals
Period *Obligations*
04/01/87-06/30/88 FY88: TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. HQ-EE/Vinas, A. F. 31-Atmos Sci
HQ-EE/Eastman, T. E.

NAG 8-733 University of Alabama - Huntsville 1130
Elevation of advanced light scattering technology for microgravity experiments
Period *Obligations*
07/01/88-06/30/89 FY88: \$126,038 TOTAL: \$126,038
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fredericks, W. J. MSFC/Witherow, W. K. 19-Phys Sci, NEC
MSFC/Pusey, M. L.

NAGW 1165 University of Alabama - Huntsville 1138
Gravity wave initiated convection and coupling between lower and upper atmosphere in subtropical regions
Period *Obligations*
10/01/87-07/31/89 FY88: \$146,997 TOTAL: \$146,997
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hung, R. J. HQ-EE/Dodge, J. D. 31-Atmos Sci
HQ-EE/Theon, J.

NAGW 9 University of Alabama - Huntsville 1131
Dynamical behavior of a flaring loop (a two dimensional, time-dependent MHD (Magnetohydrodynamic) flux tube model)
Period *Obligations*
10/01/79-12/31/88 FY88: \$85,000 TOTAL: \$673,461
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. HQ-ES/Ahluwalia, H. S. 13-Physics
HQ-EZ/Bohlin, J. D.

NAS 1-18683 University of Alabama - Huntsville 1139
Acceleration measurement and management I t E program
Period *Obligations*
06/08/88-06/07/89 FY88: \$102,000 TOTAL: \$102,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alexander, J. I. LARC/Clark, L. G. 42-Astro Engr
LARC/Blanchard, R. C.

NAGW 294 University of Alabama - Huntsville 1132
Impulsive X-ray emission in solar flares
Period *Obligations*
04/01/82-12/31/88 FY88: \$40,000 TOTAL: \$241,794
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emslie, A. G. HQ-ES/Ahluwalia, H. S. 13-Physics
HQ-EZ/Bohlin, J. D.

NAS 3-25361 University of Alabama - Huntsville 1140
Vapor crystal growth
Period *Obligations*
10/01/88-03/31/90 FY88: \$110,235 TOTAL: \$110,235
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenberger, F. E. LERC/Duvall, W. 47-Materials Engr
Wessling, F. C.

NAGW 812 University of Alabama - Huntsville 1133
The commercial development of space in materials processing
Period *Obligations*
09/15/85-09/14/89 FY88: \$2,446,000 TOTAL: \$4,971,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lundquist, C. HQ-IC/Oran, W. A. 47-Materials Engr
Wessling, E. HQ/Whitten, R. P.

NAS 8-33726 University of Alabama - Huntsville 1141
Study effects of internal wave on the neutral atmosphere
Period *Obligations*
02/11/80-09/30/87 FY88: TOTAL: \$596,730
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hung, R. J. MSFC/West, G. S. 32-Geological Sci
MSFC/Smith, G. T.

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAS 8-34137	University of Alabama - Huntsville	1142	Burst and transient source experiment (BATSE) for the gamma-ray observatory	
<i>Period</i>	<i>Obligations</i>			
02/05/81-07/04/87	FY88:	TOTAL:	\$336,971	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Paciesas, W. S.	MSFC/Fishman, G. J.	31-Atmos Sci		
	MSFC/Parnell, T. A.			
NAS 8-34953	University of Alabama - Huntsville	1143	Determine mission configuration for future payloads for Spacelab missions and space plasma physics experiments working group	
<i>Period</i>	<i>Obligations</i>			
06/14/82-12/30/87	FY88:	TOTAL:	\$113,466	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Wu, S. T.	MSFC/Richards, L. O.	31-Atmos Sci		
NAS 8-34957	University of Alabama - Huntsville	1144	Mercury-cadmium-telluride crystal growth studies	
<i>Period</i>	<i>Obligations</i>			
09/01/82-03/31/88	FY88: \$8,849	TOTAL:	\$244,699	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Cheng, H. Y.	MSFC/Szofran, F. S.	13-Physics		
	MSFC/Edland, G. L.			
NAS 8-35354	University of Alabama - Huntsville	1145	Research study: Space radiation studies	
<i>Period</i>	<i>Obligations</i>			
07/22/83-06/30/89	FY88:	TOTAL:	\$231,768	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Takahashi, Y.	MSFC/Parnell, T. A.	13-Physics		
	MSFC/Watts, J.			
NAS 8-35362	University of Alabama - Huntsville	1146	Cell partition in two polymer aqueous phases	
<i>Period</i>	<i>Obligations</i>			
07/21/83-12/31/89	FY88: \$40,000	TOTAL:	\$232,618	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Harris, J. M.	MSFC/Gardner, L. B.	59-Life Sci, NEC		
NAS 8-36102	University of Alabama - Huntsville	1147	Support QASO study group	
<i>Period</i>	<i>Obligations</i>			
07/09/84-09/14/88	FY88:	TOTAL:	\$218,479	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Wu, S. T.	MSFC/Roberts, W. T.	31-Atmos Sci		
NAS 8-36254	University of Alabama - Huntsville	1148	Advanced high pressure O ₂ /H ₂ technology information dissemination and research	
<i>Period</i>	<i>Obligations</i>			
09/27/85-09/26/88	FY88: \$16,951	TOTAL:	\$59,238	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Wu, S. T.	MSFC/Houston, V. L.	41-Aero Engr		
	MSFC/Richmond, R.			
NAS 8-36279	University of Alabama - Huntsville	1149	Evaluation of the magnitude and scale of atmospheric physical processes in relation to space sensor design and development	
<i>Period</i>	<i>Obligations</i>			
03/24/86-03/23/89	FY88: \$195,295	TOTAL:	\$966,217	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
McNider, R. T.	MSFC/Greene, W. M.	31-Atmos Sci		
	MSFC/Smith, G. T.			
NAS 8-36362	University of Alabama - Huntsville	1150	Burst and transient source experiment for the gamma ray observatory	
<i>Period</i>	<i>Obligations</i>			
03/04/87-02/15/89	FY88: \$190,000	TOTAL:	\$303,938	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Paciesas, W. S.	MSFC/Fishman, G. J.	11-Astronomy		
NAS 8-36479	University of Alabama - Huntsville	1151	Numerical investigation of mesoscale pre-convection forcing mechanisms and evaluation of satellite resolution of these mechanisms	
<i>Period</i>	<i>Obligations</i>			
09/11/85-09/11/91	FY88: \$198,000	TOTAL:	\$924,759	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
McNider, R. T.	MSFC/Arnold, J.	31-Atmos Sci		
	MSFC/Robertson, F. R.			
NAS 8-36485	University of Alabama - Huntsville	1152	Heat treatment study of MAR-M246	
<i>Period</i>	<i>Obligations</i>			
09/17/85-08/31/88	FY88: \$22,961	TOTAL:	\$92,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Workman, G. L.	MSFC/Lee, J. E.	13-Physics		
	MSFC/Spray, C.			
NAS 8-36620	University of Alabama - Huntsville	1153	Drop tube drop tower, KC 135 and F-104 experiment operations tasks	
<i>Period</i>	<i>Obligations</i>			
10/01/85-12/31/88	FY88: \$730,186	TOTAL:	\$1,660,006	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Workman, G. L.	MSFC/Robinson, M. B.	19-Phys Sci, NEC		
NAS 8-36645	University of Alabama - Huntsville	1154	Partial analysis of LDEF experiment a 0114 study:	
<i>Period</i>	<i>Obligations</i>			
05/20/85-11/19/91	FY88: \$8,000	TOTAL:	\$17,900	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Gregory, J. C.	MSFC/Peters, P. N.	12-Chemistry		
	MSFC/Muler, E. R.			
NAS 8-36718	University of Alabama - Huntsville	1155	Theoretical and experimental fluid dynamics studies for space flight payload definition	
<i>Period</i>	<i>Obligations</i>			
09/04/86-09/03/89	FY88: \$48,439	TOTAL:	\$511,247	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
McNider, R. T.	MSFC/Kaufman, J. W.	29-Math/Computer, NEC		
Schroer, B. J.	MSFC/Fichtl, G. H.			
NAS 8-36955	University of Alabama - Huntsville	1156	Essential education engineering research and development capability	
<i>Period</i>	<i>Obligations</i>			
06/06/88-06/05/93	FY88: \$180,509	TOTAL:	\$180,509	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Gregory, J.	MSFC/Smith, L. J.	99-Multi-Discip		
	MSFC/Lewis, W. P.			
NAS 8-37106	University of Alabama - Huntsville	1157	Imaging spectrometric observatory for the Atlas 1 mission	
<i>Period</i>	<i>Obligations</i>			
02/13/87-04/15/92	FY88: \$123,000	TOTAL:	\$373,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Torr, D. G.	MSFC/Hill, H. C.	31-Atmos Sci		
	MSFC/Ise, R.			

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAS 8-37107	University of Alabama - Huntsville	1158	Research on orbital plasma electrodynamics
<i>Period</i>	<i>Obligations</i>		
03/17/87-10/25/91	FY88: \$93,000	TOTAL: \$153,272	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ston, N.	MSFC/Duncan, B.	31-Atmos Sci	
Wu, S. T.	MSFC/Holder, R.		
Singh, N.			
NAS 8-37139	University of Alabama - Huntsville	1159	The design and development of an interactive data management and analysis system for remote sensing and conventional meteorological observation
<i>Period</i>	<i>Obligations</i>		
12/24/87-12/24/90	FY88: \$331,130	TOTAL: \$331,130	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
McNider, R. T.	MSFC/Wilson, G. S.	31-Atmos Sci	
NAS 8-37195	University of Alabama - Huntsville	1160	Research study for chemical waste disposal in space by plasma discharge
<i>Period</i>	<i>Obligations</i>		
09/21/88-09/20/90	FY88: \$85,000	TOTAL: \$85,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Baird, J. K.	MSFC/Higgins, D.	12-Chemistry	
	MSFC/Congo, R.		
NAS 8-37332	University of Alabama - Huntsville	1161	Expert system evaluation Fault diagnostics
<i>Period</i>	<i>Obligations</i>		
09/29/86-06/25/87	FY88:	TOTAL: \$66,813	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ford, D.	MSFC/Weeks, D.	22-Computer Science	
Floyd, S.	MSFC/Anderson, A.		
Teoh, W.			
NAS 8-37348	University of Alabama - Huntsville	1162	Design phase of ISTEP digital consortium
<i>Period</i>	<i>Obligations</i>		
03/25/87-03/25/90	FY88: \$60,861	TOTAL: \$123,492	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Torbert, R. B.	MSFC/Fields, S. A.	13-Physics	
	MSFC/Chappell, C. R.		
NAS 8-37576	University of Alabama - Huntsville	1163	Engineering support for an ultraviolet imager for the ISTEP mission
<i>Period</i>	<i>Obligations</i>		
11/23/87-01/22/89	FY88: \$63,000	TOTAL: \$63,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Torr, D.	MSFC/Fields, S.	19-Phys Sci, NEC	
	MSFC/Reed, L. S.		
NAS 8-37751	University of Alabama - Huntsville	1164	Development of emulsion chamber tech for cosmic ray and high energy physics research in space station era
<i>Period</i>	<i>Obligations</i>		
08/17/88-11/16/89	FY88: \$201,241	TOTAL: \$201,241	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gregory, J.	MSFC/Parnell, T. A.	13-Physics	
	MSFC/Derrickson, J. H.		
NAS 9-17598	University of Alabama - Huntsville	1165	Research on programmable masks
<i>Period</i>	<i>Obligations</i>		
02/15/86-09/30/87	FY88:	TOTAL: \$78,454	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Duthie, G.	JSC/Juday, R.	22-Computer Science	
NAS 9-17962	University of Alabama - Huntsville	1166	Laser welding technology in space experiment
<i>Period</i>	<i>Obligations</i>		
05/09/88-04/29/89	FY88: \$114,328	TOTAL: \$114,328	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Workman, G. L.	JSC/Bennett, J. E.	47-Materials Engr	
NAS 9-17973	University of Alabama - Huntsville	1167	Definition of a microbiological monitor for application in space vehicles
<i>Period</i>	<i>Obligations</i>		
06/01/88-06/01/89	FY88: \$105,460	TOTAL: \$105,460	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kilgore, M. V.	JSC/Pierson, D.	51-Biological Sci	
NCC 8-2	University of Alabama - Huntsville	1168	High temperature superconductors
<i>Period</i>	<i>Obligations</i>		
06/26/87-08/26/88	FY88:	TOTAL: \$79,995	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Wu, M. K.	MSFC/Curreni, P. A.	49-Engr, NEC	
	MSFC/Strauss, E. M.		
NCC 8-4	University of Alabama - Huntsville	1169	Stress and fatigue studies of formed metal bellows
<i>Period</i>	<i>Obligations</i>		
10/23/87-10/22/88	FY88: \$186,561	TOTAL: \$186,561	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Guinn, G. R.	MSFC/Tygielski, P. J.	46-Mech Engr	
Schonberg, W. P.			
NCC 8-13	University of Alabama - Huntsville	1170	Foundation for automated software techniques and application of artificial intelligence
<i>Period</i>	<i>Obligations</i>		
06/01/88-05/31/91	FY88: \$391,000	TOTAL: \$391,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ford, D. R.	MSFC/Wolfsberger, J. W.	49-Engr, NEC	
	MSFC/White, C. H.		
NCC 8-15	University of Alabama - Huntsville	1171	Characterize fluid flow digital correlation of sca fluid flow digital correlation of scattered light
<i>Period</i>	<i>Obligations</i>		
08/01/88-07/10/89	FY88: \$157,775	TOTAL: \$157,775	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gilbert, J. A.	MSFC/Ruff, R. C.	19-Phys Sci, NEC	
NCC 8-16	University of Alabama - Huntsville	1172	Computer vision systems for space station
<i>Period</i>	<i>Obligations</i>		
08/01/88-07/31/89	FY88: \$55,189	TOTAL: \$55,189	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ranganath, H. S.	MSFC/Vinz, F. L.	22-Computer Science	
	MSFC/Denton, J. S.		
NGT 00-050-044	University of Alabama - Huntsville	1173	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>		
09/01/86-08/31/89	FY88: \$36,000	TOTAL: \$54,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Emslie, A. G.	HQ-LE/Owens, F. C.	13-Physics	

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NGT 00-050-124 University of Alabama - Huntsville 1174
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, E. E. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-129 University of Alabama - Huntsville 1175
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/89 FY88: \$16,900 TOTAL: \$34,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenberger, F. HQ-LE/Owens, F. C. 22-Computer Science

NGT 00-050-224 University of Alabama - Huntsville 1176
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldberg, D. E. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-355 University of Alabama - Huntsville 1177
NASA graduate student researchers program
Period *Obligations*
09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Torr, D. G. HQ-XE/Owens, F. C. 13-Physics

NGT 01-008-021 University of Alabama - Huntsville 1178
Summer faculty fellowship program
Period *Obligations*
01/01/76-01/31/89 FY88: \$170,600 TOTAL: \$1,842,313
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Karr, G. R. HQ-LB/Owens, F. C. 49-Engr, NEC

NAG 8-70 University of Alabama - University 1179
The influence of gravity on the solidification of ceramic metal matrix composite materials
Period *Obligations*
07/30/86-05/26/89 FY88: \$40,000 TOTAL: \$80,607
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stefanesai, D. M. MSFC/Curreri, P. A. 47-Materials Engr
MSFC/Lehocrky, S. L.

NAG 8-81 University of Alabama - University 1180
Stochastic model of the NASA MSFC ground facility for large space structures with uncertain parameters the maximum entropy approach
Period *Obligations*
10/20/86-07/23/89 FY88: \$28,000 TOTAL: \$40,166
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hsia, W. S. MSFC/Waites, H. 41-Aero Engr
MSFC/Sharkey, J.

NAG 8-93 University of Alabama - University 1181
Computer architecture and intelligent systems for real time Fault tolerant applications advanced guidance control and avionics systems
Period *Obligations*
07/01/87-07/21/89 FY88: \$64,000 TOTAL: \$114,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carroll, C. C. MSFC/Haley, A. D. 22-Computer Science
MSFC/Spears, L.

NAG 8-469 University of Alabama - University 1182
Graphite formation in cast iron
Period *Obligations*
03/30/84-12/31/87 FY88: TOTAL: \$126,227
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stefanesou, D. M. MSFC/Black, R. E. 47-Materials Engr

NAG 8-703 University of Alabama - University 1183
Program risk methodology development and demonstration
Period *Obligations*
03/01/88-10/31/88 FY88: \$14,933 TOTAL: \$14,933
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bation, R. G. MSFC/Patel, S. 29-Math/Computer, NEC

NAG 8-718 University of Alabama - University 1184
Development of generalized solution strategy for commonality studies
Period *Obligations*
05/15/88-05/15/89 FY88: \$58,579 TOTAL: \$58,579
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yeager, D. P. MSFC/Thomas, L. D. 22-Computer Science
MSFC/Sisk, S. M.

NAS 8-36193 University of Alabama - University 1185
The role of gravity during the solidification of miscibility gap alloys
Period *Obligations*
11/08/84-11/02/88 FY88: TOTAL: \$67,325
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stefanescu, D. M. MSFC/Curreri, P. A. 99-Multi-Discip
Clum, J. A. MSFC/Johnson, M. H.

NCC 8-3 University of Alabama - University 1186
Influence of a gravity level during solidification processing on the superconducting transition temperature of TB-SE-SN alloys
Period *Obligations*
07/14/87-08/28/89 FY88: \$20,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stefanescu, D. M. MSFC/Curreri, T. A. 49-Engr, NEC
MSFC/Strauss, E. M.

NGT 01-002-099 University of Alabama - University 1187
Summer faculty fellowship program in research
Period *Obligations*
01/01/78-03/31/89 FY88: \$373,872 TOTAL: \$1,831,127
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freeman, L. M. HQ-LE/Owens, F. C. 49-Engr, NEC

ALASKA

NAG 5-471 University of Alaska - Fairbanks 1188
Auroral and dayglow modeling using Dynamics Explorer observations
Period *Obligations*
10/01/84-04/30/88 FY88: TOTAL: \$49,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rees, M. H. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAG 5-747 University of Alaska - Fairbanks 1189
Dynamics of the dayside of the winter polar thermosphere
Period *Obligations*
03/15/86-03/31/88 FY88: TOTAL: \$25,606
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, R. W. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

**NASA'S UNIVERSITY PROGRAM
ALASKA (Continued)**

NAG 5-887 University of Alaska - Fairbanks 1190
Measurements on the snow of interior and arctic Alaska
Period *Obligations*
04/01/87-03/31/89 FY88: \$19,500 TOTAL: \$44,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Benson, C. S. GSFC/Hall, D. K. 19-Phys Sci, NEC
GSFC/Foster, J. L.

NAG 5-1074 University of Alaska - Fairbanks 1191
Barium injection experiments color TV camera
Period *Obligations*
10/01/88-09/30/89 FY88: \$22,623 TOTAL: \$22,623
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hallinan, T. J. GSFC/Ledley, B. G. 13-Physics
GSFC/Heppner, J. P.

NAG 6-1 University of Alaska - Fairbanks 1192
Fluorescent plasma tracer and perturbation experiments from sounding rockets
Period *Obligations*
01/01/80-01/31/89 FY88: \$54,000 TOTAL: \$1,557,549
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wescott, E. M. GSFC/Early, L. J. 19-Phys Sci, NEC
GSFC/Pless, R. H.

NAGW 269 University of Alaska - Fairbanks 1193
Numerical simulation of the turbulent cascade and voltage amplification mechanism in the magnetosphere
Period *Obligations*
01/01/82-09/30/88 FY88: \$73,113 TOTAL: \$233,415
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Swift, D. W. HQ-ES/Mellott, M. M. 19-Phys Sci, NEC
HQ-EE/Eastman, T. E.

NAGW 841 University of Alaska - Fairbanks 1194
Geochemical and kinetic studies on microbial aerobic oxidation a modulator of atmospheric methane fluxes from tundra and marine environments
Period *Obligations*
10/01/85-12/31/88 FY88: \$134,433 TOTAL: \$422,352
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reeburgh, W. S. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
HQ-EE/Watson, R. T.

NAGW 906 University of Alaska - Fairbanks 1195
Quasi parallel collisionless shocks
Period *Obligations*
07/01/86-09/30/88 FY88: TOTAL: \$52,246
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kan, J. R. HQ-EE/Vinas, A. F. 13-Physics
HQ-EE/Eastman, T. E.

NAGW 930 University of Alaska - Fairbanks 1196
Auroral imaging from spacelab III and optical observation of the AMPTE artificial comet and magnetotail barium releases
Period *Obligations*
07/01/86-12/31/87 FY88: TOTAL: \$61,474
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hallinan, T. J. HQ-EE/Eastman, T. E. 13-Physics
HQ-EE/Shawhan, S. D.

NAGW 932 University of Alaska - Fairbanks 1197
SAR studies of sea ice in the arctic
Period *Obligations*
06/01/86-04/30/88 FY88: TOTAL: \$1,303,139
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weller, G. HQ-EE/Jezek, K. C. 33-Oceanography
Stringer, W. HQ-EE/Wilson, W. S.

NAGW 1051 University of Alaska - Fairbanks 1198
The Alaskan SAR facility and studies related to the polar ocean data
Period *Obligations*
03/15/87-03/14/88 FY88: TOTAL: \$110,940
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weeks, W. F. HQ-EE/Jezek, K. C. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1174 University of Alaska - Fairbanks 1199
An investigation of mesoscales variability using aircraft and MST radar data
Period *Obligations*
10/01/87-09/30/89 FY88: \$64,891 TOTAL: \$129,849
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fritts, D. C. HQ-EE/Miller, T. L. 31-Atmos Sci
Nastrom, G. D. HQ-EE/Prather, M. J.

NAGW 1250 University of Alaska - Fairbanks 1200
Magnetosphere ionosphere coupling and substorm phenomena
Period *Obligations*
09/01/87-08/31/88 FY88: \$6,258 TOTAL: \$6,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kan, J. R. HQ-EE/Mellott, M. M. 13-Physics

NAGW 1342 University of Alaska - Fairbanks 1201
Development of solar terrestrial research programs for the nineties
Period *Obligations*
06/01/88-05/31/89 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roederer, J. G. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Eastman, T. E.

NAS 5-26868 University of Alaska - Fairbanks 1202
Modeling of the atmosphere-magnetosphere-ionosphere system (MAMI)
Period *Obligations*
04/26/82-06/30/88 FY88: TOTAL: \$106,859
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rees, M. H. GSFC/O'Brien, J. J. 13-Physics

NAS 5-28762 University of Alaska - Fairbanks 1203
Coastal and Alaskan gyre circulation as redetermined by thematic mapper data
Period *Obligations*
08/06/85-12/05/88 FY88: TOTAL: \$203,049
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Royer, T. C. GSFC/Oseroff, H. 33-Oceanography
GSFC/Stuart, L.

NAS 5-28769 University of Alaska - Fairbanks 1204
Investigation of LANDSAT data on influence of the Yukon river and on the Bering sea
Period *Obligations*
08/06/85-06/30/88 FY88: TOTAL: \$149,663
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McRoy, C. GSFC/Oseroff, H. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
ALASKA (Continued)**

NAS 5-28971 University of Alaska - Fairbanks 1205
 Operation and maintenance of the Poker Flat research range
Period *Obligations*
 11/01/85-10/31/88 FY88: \$1,382,900 TOTAL: \$3,866,037
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Brown, N. B. GSFC/Milliner, C. F. 31-Atmos Sci
 GSFC/Brence, W. A.

NAG 2-522 Arizona State University 1212
 Geophysical analysis of tellus regio Venus
Period *Obligations*
 05/01/88-04/30/89 FY88: \$36,500 TOTAL: \$36,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Williams, D. R. ARC/Lasher, L. E. 11-Astronomy
 ARC/Fimmel, R. O.

NAS 8-36321 University of Alaska - Fairbanks 1206
 CBS (Ca, Ba, Sr) plasma experiments from CRRES
Period *Obligations*
 04/12/85-09/30/89 FY88: \$74,000 TOTAL: \$269,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wescott, E. M. MSFC/Reasoner, D. L. 31-Atmos Sci

NAG 3-383 Arizona State University 1213
 NASA-Arizona State University internship program
Period *Obligations*
 01/03/83-12/31/88 FY88: \$36,518 TOTAL: \$135,529
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wang, E. Y. LERC/Brinker, D. J. 45-Elec Engr
 LERC/Flood, D. J.

NCA 5-112 University of Alaska - Fairbanks 1207
 Processing synthetic aperture radar data
Period *Obligations*
 04/27/88-11/07/88 FY88: \$892,595 TOTAL: \$892,595
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, J. GSFC/Trofford, G. H. 11-Astronomy
 Weeks, W. F.
 Weller, G.

NAG 3-568 Arizona State University 1214
 Energy stability of thermocapillary convection in models of the float-zone process
Period *Obligations*
 08/05/84-10/02/88 FY88: TOTAL: \$294,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Neitzel, G. P. LERC/Chai, A. 49-Engr, NEC
 Jankowski, D. F. LERC/Salzman, J. A.

NSG 7447 University of Alaska - Fairbanks 1208
 Study of the relationship between the ring current and magnetospheric substorms: Study of possible relationship of sudden stratospheric warmings with magnetospheric substorms
Period *Obligations*
 06/01/78-05/31/88 FY88: \$5,000 TOTAL: \$425,489
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Akasofu, S. I. HQ-EE/Vinas, A. F. 19-Phys Sci, NEC
 HQ-EE/Eastman, T. E.

NAG 3-580 Arizona State University 1215
 Optimal design of multi-shaft rotor systems
Period *Obligations*
 12/31/84-02/28/89 FY88: \$40,000 TOTAL: \$180,675
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nelson, H. D. LERC/Fleming, D. P. 46-Mech Engr
 Castelazo, I. A. LERC/Kascak, A. F.
 Nataraj, C.

ARIZONA

NAG 1-562 Arizona State University 1209
 Electromagnetic backscattering by corner reflectors
Period *Obligations*
 02/01/85-06/30/89 FY88: \$89,989 TOTAL: \$263,125
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Balanis, C. A. LARC/Gilreath, M. C. 45-Elec Engr

NAG 3-623 Arizona State University 1216
 Modelling and measurement of heat transfer on turbine blade tip
Period *Obligations*
 02/28/85-08/25/88 FY88: TOTAL: \$193,603
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Metzger, D. E. LERC/Simon, F. F. 46-Mech Engr
 Chyu, M.

NAG 1-805 Arizona State University 1210
 Boundary layer stability on a swept wing
Period *Obligations*
 08/16/87-10/15/88 FY88: TOTAL: \$61,741
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Saric, W. S. LARC/Maddalon, D. V. 41-Aero Engr
 LARC/Bartlett, D. W.

NAG 3-650 Arizona State University 1217
 Fabrication and characterization of high efficiency solar cells for space application
Period *Obligations*
 08/05/85-11/29/88 FY88: \$100,000 TOTAL: \$250,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shen, C. C. LERC/Wenber, I. 45-Elec Engr
 LERC/Flood, D.

NAG 1-874 Arizona State University 1211
 Navier-Stokes simulation of the crossflow instability in swept-wing flows
Period *Obligations*
 04/05/88-04/04/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Reed, H. L. LARC/Maddalon, D. V. 41-Aero Engr
 LARC/Hefner, J. N.

NAG 5-358 Arizona State University 1218
 The ultraviolet light curve of selected binary stars
Period *Obligations*
 08/15/83-07/31/87 FY88: TOTAL: \$44,374
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cowley, A. GSFC/Kondo, Y. 11-Astronomy
 Crampton, D.
 McClure, R. D.

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAG 5-481	Arizona State University	1219	Ultraviolet observations of galactic novae in outburst <i>Period</i> 10/01/84-09/30/89 <i>Prin. Invest.</i> Starrfield, S. Kenyon, S. Ferland, G.	<i>Obligations</i> FY88: \$13,400 NASA Tech. Officer GSFC/Kondo, Y.	TOTAL: \$66,800 <i>CASE Category</i> 11-Astronomy
NAG 5-547	Arizona State University	1220	K giant spectra for stella population models <i>Period</i> 06/01/85-09/14/89 <i>Prin. Invest.</i> Burstein, D. Wu, C. C. O'connell, R. W.	<i>Obligations</i> FY88: \$29,598 NASA Tech. Officer GSFC/Kondo, Y.	TOTAL: \$68,970 <i>CASE Category</i> 11-Astronomy
NAG 5-996	Arizona State University	1221	Probing the voids <i>Period</i> 09/01/87-08/31/89 <i>Prin. Invest.</i> Cowley, A. P. Hartwick, F. D.	<i>Obligations</i> FY88: \$27,355 NASA Tech. Officer GSFC/Kondo, Y.	TOTAL: \$27,355 <i>CASE Category</i> 11-Astronomy
NAG 5-1006	Arizona State University	1222	Blue stragglers in open clusters <i>Period</i> 10/01/87-09/30/89 <i>Prin. Invest.</i> Stryker, L. Garmany, C.	<i>Obligations</i> FY88: \$20,456 NASA Tech. Officer GSFC/Kondo, Y.	TOTAL: \$30,756 <i>CASE Category</i> 11-Astronomy
NAG 8-505	Arizona State University	1223	The X-ray properties of UGC galaxies in Einstein fields <i>Period</i> 12/21/84-08/31/87 <i>Prin. Invest.</i> Burstein, D.	<i>Obligations</i> FY88: NASA Tech. Officer MSFC/Dorries, A. M.	TOTAL: \$23,928 <i>CASE Category</i> 11-Astronomy
NAG 8-559	Arizona State University	1224	A variable X-ray source in the direction of the LMC: Cal 83 <i>Period</i> 10/15/85-04/15/87 <i>Prin. Invest.</i> Cowley, A. P.	<i>Obligations</i> FY88: NASA Tech. Officer MSFC/Bass, B. G.	TOTAL: \$10,032 <i>CASE Category</i> 11-Astronomy
NAG 8-576	Arizona State University	1225	Optical studies of accreting galaxie clusters observed with HEAO-2 <i>Period</i> 04/01/86-04/01/88 <i>Prin. Invest.</i> Romanishin, W.	<i>Obligations</i> FY88: NASA Tech. Officer MSFC/Dorries, A. M.	TOTAL: \$11,134 <i>CASE Category</i> 11-Astronomy
NAG 8-665	Arizona State University	1226	The X ray properties of UGC and ESO galaxies in Einstein fields <i>Period</i> 08/01/87-07/31/88 <i>Prin. Invest.</i> Burstein, D.	<i>Obligations</i> FY88: NASA Tech. Officer MSFC/Harper, B. A.	TOTAL: \$14,773 <i>CASE Category</i> 11-Astronomy
NAG 8-734	Arizona State University	1227	The X ray properties of normal galaxies in Einstein fields <i>Period</i> 10/01/88-09/30/89 <i>Prin. Invest.</i> Burstein, D.	<i>Obligations</i> FY88: \$15,054 NASA Tech. Officer MSFC/Harper, B. A.	TOTAL: \$15,054 <i>CASE Category</i> 11-Astronomy
NAG 9-59	Arizona State University	1228	Mineralogy of carbonaceous chondrites and cosmic dust particles <i>Period</i> 02/15/83-02/14/89 <i>Prin. Invest.</i> Buseck, P. R. Tomeoka, K.	<i>Obligations</i> FY88: \$97,000 NASA Tech. Officer JSC/Browne, I. D.	TOTAL: \$527,000 <i>CASE Category</i> 32-Geological Sci
NAG 9-79	Arizona State University	1229	Meteorites the origin and early evolution of the solar <i>Period</i> 03/01/84-04/01/89 <i>Prin. Invest.</i> Larimer, J. W.	<i>Obligations</i> FY88: NASA Tech. Officer JSC/Browne, I. D.	TOTAL: \$259,653 <i>CASE Category</i> 32-Geological Sci
NAG 9-183	Arizona State University	1230	Curate investigate characterize and describe meteorites <i>Period</i> 10/01/86-10/01/89 <i>Prin. Invest.</i> Moore, C. B.	<i>Obligations</i> FY88: \$20,000 NASA Tech. Officer JSC/Browne, I. D.	TOTAL: \$30,000 <i>CASE Category</i> 32-Geological Sci
NAG 9-237	Arizona State University	1231	Volatiles in primary Martian magmas <i>Period</i> 06/01/87-12/01/88 <i>Prin. Invest.</i> Holloway, J. R.	<i>Obligations</i> FY88: NASA Tech. Officer JSC/Browne, I. D.	TOTAL: \$55,000 <i>CASE Category</i> 32-Geological Sci
NAGW 1	Arizona State University	1232	Planetary and Mars geomorphology <i>Period</i> 02/01/80-01/31/89 <i>Prin. Invest.</i> Malin, M. C.	<i>Obligations</i> FY88: \$75,000 NASA Tech. Officer HQ-EL/Underwood, J. HQ-EL/Boyce, J. M.	TOTAL: \$685,232 <i>CASE Category</i> 32-Geological Sci
NAGW 132	Arizona State University	1233	Geological studies of the Galilean satellite <i>Period</i> 02/01/81-01/31/89 <i>Prin. Invest.</i> Greeley, R.	<i>Obligations</i> FY88: \$70,000 NASA Tech. Officer HQ-EL/Underwood, J. HQ-EL/Boyce, J. M.	TOTAL: \$647,277 <i>CASE Category</i> 32-Geological Sci
NAGW 182	Arizona State University	1234	Phase equilibria in the Martian mantle <i>Period</i> 04/01/81-03/30/87 <i>Prin. Invest.</i> Holloway, J. R.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Boyce, J. M. HQ-EL/Scott, D. H.	TOTAL: \$283,966 <i>CASE Category</i> 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAGW 519	Arizona State University	1235
Participation in the international venera gallei (VEGA) mission to comet Halley		
<i>Period</i>	<i>Obligations</i>	
02/01/84-10/31/87	FY88: TOTAL: \$155,666	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, B. A.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Quaide, W. L.	
NAGW 529	Arizona State University	1236
Field measurements of the 1983 east rift basalt flows at Kilauea volcano		
<i>Period</i>	<i>Obligations</i>	
03/01/84-01/31/89	FY88: \$15,000 TOTAL: \$59,160	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fink, J.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EC/Boyce, J. M.	
NAGW 547	Arizona State University	1237
Spectroscopy of comets		
<i>Period</i>	<i>Obligations</i>	
02/15/84-12/31/88	FY88: \$65,000 TOTAL: \$326,936	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wyckoff, S.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	
NAGW 580	Arizona State University	1238
Martian water ice clouds and surface condensates		
<i>Period</i>	<i>Obligations</i>	
03/15/84-06/30/87	FY88: TOTAL: \$104,722	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greeley, R.	HQ-EL/Quaide, W. L.	32-Geological Sci
NAGW 943	Arizona State University	1239
Thermal infrared special measurements of geologic materials		
<i>Period</i>	<i>Obligations</i>	
07/15/86-04/30/89	FY88: \$34,914 TOTAL: \$80,870	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Christensen, P. R.	HQ-EL/Underwood, J.	32-Geological Sci
	HQ-EL/Boyce, J. M.	
NAGW 1074	Arizona State University	1240
Martian volcanism type age and distribution of volcanic materials on Mars		
<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$35,000 TOTAL: \$69,780	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greeley, R.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	
NAGW 1080	Arizona State University	1241
Mars surface compositional variations from thermal emissivity and albedo determinations		
<i>Period</i>	<i>Obligations</i>	
05/01/87-04/30/89	FY88: \$39,949 TOTAL: \$79,848	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Christensen, P. R.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	
NAGW 1115	Arizona State University	1242
Morphology and spectral characteristics of ignimbrites Earth and Mars		
<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$25,000 TOTAL: \$44,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sheridan, M. F.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	
NAGW 1224	Arizona State University	1243
Geologic mapping of southern Mangala Valles MTME15147		
<i>Period</i>	<i>Obligations</i>	
10/01/87-06/30/88	FY88: TOTAL: \$10,560	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greeley, R.	HQ-EL/Underwood, J.	32-Geological Sci
	HQ-EL/Boyce, J. M.	
NAGW 1306	Arizona State University	1244
Mapping planetary and satellite surface		
<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$38,562 TOTAL: \$38,562	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greeley, R.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Scott, D. H.	
NAGW 1343	Arizona State University	1245
Rheology and composition of Martian mass movement deposits		
<i>Period</i>	<i>Obligations</i>	
02/01/88-01/31/89	FY88: \$10,000 TOTAL: \$10,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fink, J.	HQ-EL/Underwood, J. R.	32-Geological Sci
NAGW 1395	Arizona State University	1246
Evolution of photosynthesis		
<i>Period</i>	<i>Obligations</i>	
07/01/88-06/30/89	FY88: \$55,922 TOTAL: \$55,922	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blankenship, R. E.	HQ-EB/Rummel, J. D.	51-Biological Sci
NAGW 1429	Arizona State University	1247
Thermal conductivity measurements for planetary surfaces		
<i>Period</i>	<i>Obligations</i>	
08/15/88-08/14/89	FY88: \$14,973 TOTAL: \$14,973	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Christensen, P. R.	HQ-EL/Underwood, J. R.	32-Geological Sci
NAGW 1456	Arizona State University	1248
Volatiles in primary Martian magmas		
<i>Period</i>	<i>Obligations</i>	
06/01/88-05/31/89	FY88: \$55,000 TOTAL: \$55,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holloway, J. R.	HQ-EL/Boyce, J. M.	19-Phys Sci, NEC
NASW 4021	Arizona State University	1249
Mid-infrared spectral emission radiometer for planetary exploration		
<i>Period</i>	<i>Obligations</i>	
11/01/84-08/31/87	FY88: TOTAL: \$227,222	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Christensen, P. R.	HQ-EL/Vescelus, F.	11-Astronomy
Chase, S. C.	HQ-EL/Quaide, W.	
Kieffer, H. H.		
NASW 4098	Arizona State University	1250
Unix microcomputer-based image processing system development for the planetary data system		
<i>Period</i>	<i>Obligations</i>	
08/16/85-04/14/89	FY88: \$41,049 TOTAL: \$160,357	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D. L.	HQ-EL/Quaide, W. L.	22-Computer Science

NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)

NCA 2-8 Arizona State University 1251
 Assessment of inherent parallelism in explicit CFD codes
Period Obligations
 01/15/85-12/31/86 FY88: TOTAL: \$48,187
Prin. Invest. NASA Tech. Officer CASE Category
 Tylavsky, D. J. ARC/Stevens, K. G. 22-Computer Science

NSG 7255 Arizona State University 1259
 The nature and origin of organic compounds in carbonaceous meteorites
Period Obligations
 06/14/76-09/30/88 FY88: \$95,000 TOTAL: \$748,664
Prin. Invest. NASA Tech. Officer CASE Category
 Cronin, J. R. HQ-EB/Devincenzi, D. L. 32-Geological Sci
 Yuen, G. U. HQ-EB/Averner, M.

NCC 1-89 Arizona State University 1252
 Flat-plate experiments in the national transonic facility
Period Obligations
 10/22/84-12/31/87 FY88: TOTAL: \$101,137
Prin. Invest. NASA Tech. Officer CASE Category
 Saric, W. S. LARC/Peterson, J. B., Jr. 41-Aero Engr
 LARC/Brace, W. E.

NSG 7415 Arizona State University 1260
 Geological studies in planetology
Period Obligations
 12/01/77-12/31/88 FY88: \$218,000 TOTAL: \$2,437,110
Prin. Invest. NASA Tech. Officer CASE Category
 Greeley, R. HQ-EL/Scott, D. H. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NCC 2-346 Arizona State University 1253
 Laboratory simulations of Martian and Venusian Aeolian processes
Period Obligations
 03/01/85-02/28/89 FY88: \$97,242 TOTAL: \$336,589
Prin. Invest. NASA Tech. Officer CASE Category
 Greeley, R. ARC/Smith, B. F. 32-Geological Sci
 Marshall, J. HQ-/Pollaef, J. P.

NSG 7548 Arizona State University 1261
 Studies in Martian geology
Period Obligations
 03/01/79-03/31/89 FY88: \$75,802 TOTAL: \$856,690
Prin. Invest. NASA Tech. Officer CASE Category
 Greeley, R. HQ-EL/Underwood, J. R. 31-Atmos Sci
 HQ-EL/Boyce, J. M.

NCC 2-348 Arizona State University 1254
 Space station astrometric telescope facility: Definition and development phase
Period Obligations
 03/01/85-11/30/89 FY88: \$733,405 TOTAL: \$1,356,711
Prin. Invest. NASA Tech. Officer CASE Category
 Levey, E. H. ARC/Nishioka, K. 11-Astronomy
 Gatewood, G. D. ARC/Sobeck, C. K.

NAG 2-465 Northern Arizona University 1262
 A combined analysis of Venusian gravity and surface morphology
Period Obligations
 01/01/87-12/31/87 FY88: TOTAL: \$18,344
Prin. Invest. NASA Tech. Officer CASE Category
 Morgan, P. ARC/Fimmel, R. O. 11-Astronomy
 ARC/Craig, R. A.

NCC 2-472 Arizona State University 1255
 Fast Fourier Transform FFT on Intel personal super computer
Period Obligations
 03/01/87-11/30/87 FY88: TOTAL: \$3,040
Prin. Invest. NASA Tech. Officer CASE Category
 Tylavsky, D. ARC/Stevens, K. G. 22-Computer Science

NAGW 928 Northern Arizona University 1263
 Mars movie project
Period Obligations
 07/01/86-06/31/89 FY88: \$32,000 TOTAL: \$94,200
Prin. Invest. NASA Tech. Officer CASE Category
 Mullens, L. J. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/French, B. M.

NGT 00-050-301 Arizona State University 1256
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Holloway, J. HQ-XE/Owens, F. C. 32-Geological Sci

NAGW 979 Northern Arizona University 1264
 Alba patera 1:500,000 scale geologic map
Period Obligations
 10/01/86-09/30/88 FY88: \$42,000 TOTAL: \$82,000
Prin. Invest. NASA Tech. Officer CASE Category
 Holt, H. E. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Underwood, J. R.

NGT 03-001-802 Arizona State University 1257
 NASA graduate student researchers program
Period Obligations
 06/01/85-05/31/88 FY88: TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Malin, M. C. HQ-LE/Owens, F. C. 32-Geological Sci

NAGW 982 Northern Arizona University 1265
 Tempe plateau 1:500,000 scale geologic maps
Period Obligations
 10/01/86-09/30/88 FY88: \$30,000 TOTAL: \$59,917
Prin. Invest. NASA Tech. Officer CASE Category
 Swann, G. A. HQ-EL/Underwood, J. R. 32-Geological Sci
 HQ-EL/French, B. M.

NGT 03-001-803 Arizona State University 1258
 NASA graduate student researchers program
Period Obligations
 07/01/85-09/30/88 FY88: TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
 Greeley, R. HQ-LE/Owens, F. C. 12-Chemistry

NCA 2-141 Northern Arizona University 1266
 Ecosystem response to changes in fertility and moisture
Period Obligations
 07/01/86-06/30/88 FY88: \$5,374 TOTAL: \$30,459
Prin. Invest. NASA Tech. Officer CASE Category
 Bowman, A. ARC/Matson, P. A. 54-Env Biology

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAG 2-52 University of Arizona 1267
The radial velocity search for extrasolar planets
Period Obligations
10/01/80-11/30/87 FY88: TOTAL: \$565,856
Prin. Invest. NASA Tech. Officer CASE Category
McMillan, R. S. ARC/Scargle, J. D. 11-Astronomy
Smith, P. H. ARC/Black, D. C.

NAG 2-416 University of Arizona 1275
The net flux of radiation in the atmosphere of Jupiter
Period Obligations
08/01/86-11/30/88 FY88: \$20,328 TOTAL: \$86,318
Prin. Invest. NASA Tech. Officer CASE Category
Tomasko, M. G. ARC/Twarowski, R. J. 31-Atmos Sci
ARC/Chin, B.

NAG 2-143 University of Arizona 1268
Participation in the Pioneer Venus mission
Period Obligations
10/01/81-10/31/88 FY88: \$55,072 TOTAL: \$356,596
Prin. Invest. NASA Tech. Officer CASE Category
Hunten, D. M. ARC/Fimmel, R. O. 19-Phys Sci, NEC
ARC/Craig, R. A.

NAG 2-447 University of Arizona 1276
Hot extended emission in the infrared background infrared Cirrus asteroid dust bands and cometary dust trails
Period Obligations
03/01/87-08/31/89 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Low, F. J. ARC/Goorvitch, D. 11-Astronomy
Sykes, M. V.

NAG 2-206 University of Arizona 1269
Infrared spectroscopy of planetary atmospheres from the Kuiper Airborne Observatory
Period Obligations
11/01/82-12/31/89 FY88: \$262,195 TOTAL: \$1,105,902
Prin. Invest. NASA Tech. Officer CASE Category
Larson, H. P. ARC/Haughney, L. C. 11-Astronomy
Davis, D. S.
Black, J. H.

NAG 2-519 University of Arizona 1277
Solar cycle variation of the Venus ionosphere thermosphere
Period Obligations
07/01/88-06/30/89 FY88: \$39,997 TOTAL: \$39,997
Prin. Invest. NASA Tech. Officer CASE Category
Bougher, S. W. ARC/Lasher, L. E. 11-Astronomy
ARC/Fimmel, R. O.

NAG 2-319 University of Arizona 1270
Definition of the science requirements for SIRTf
Period Obligations
07/01/84-09/30/88 FY88: \$30,000 TOTAL: \$160,393
Prin. Invest. NASA Tech. Officer CASE Category
Low, F. J. ARC/Ramos, R. 11-Astronomy
ARC/Thorley, G.

NAG 2-527 University of Arizona 1278
Refinement of ground-based imaging and photometry of the Saturn E-ring for the proposed NASA-ESA Cassini mission
Period Obligations
02/01/88-01/31/89 FY88: \$9,000 TOTAL: \$9,000
Prin. Invest. NASA Tech. Officer CASE Category
Larson, S. M. ARC/Cuzzi, J. N. 11-Astronomy

NAG 2-320 University of Arizona 1271
Definition phase of a multiband imaging photometer MIPS for the space infrared telescope facility (SIRTf)
Period Obligations
09/01/84-02/28/89 FY88: TOTAL: \$832,005
Prin. Invest. NASA Tech. Officer CASE Category
Rieke, G. ARC/Ramos, R. 11-Astronomy
ARC/Thorley, G.

NAG 2-533 University of Arizona 1279
Knowledge base acquisition using group support software
Period Obligations
04/01/88-10/31/88 FY88: \$280,000 TOTAL: \$280,000
Prin. Invest. NASA Tech. Officer CASE Category
Nunamaker, J. F. ARC/Friedland, P. E. 22-Computer Science

NAG 2-326 University of Arizona 1272
Effects of hypogravity on synaptogenesis in cell culture
Period Obligations
01/01/85-05/31/88 FY88: TOTAL: \$119,000
Prin. Invest. NASA Tech. Officer CASE Category
Gruener, R. P. ARC/Souza, K. A. 51-Biological Sci
ARC/Oyama, J.

NAG 3-357 University of Arizona 1280
Noise generated by airfoils encountering high frequency convected disturbances-effects of airfoil shape, incidence angle and finite span sweep
Period Obligations
11/30/82-01/06/89 FY88: \$59,999 TOTAL: \$301,188
Prin. Invest. NASA Tech. Officer CASE Category
Kerschen, E. J. LERC/Groeneweg, J. F. 41-Aero Engr

NAG 2-384 University of Arizona 1273
Skeletal muscle metabolism in hypokinetic rats
Period Obligations
11/01/85-10/31/88 FY88: \$40,000 TOTAL: \$155,578
Prin. Invest. NASA Tech. Officer CASE Category
Tischler, M. E. ARC/Winget, C. M. 51-Biological Sci
ARC/Ballard, R. W.

NAG 3-460 University of Arizona 1281
The origin and control of large coherent structures in an axisymmetric turbulent jet
Period Obligations
11/15/83-01/31/88 FY88: TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Peterson, R. A. LERC/Miles, J. 41-Aero Engr
Wyganski, I. J.

NAG 2-392 University of Arizona 1274
Mechanistic studies on reduced exercise performance and cardiac deconditioning with simulated zero gravity
Period Obligations
04/15/86-12/31/88 FY88: \$93,618 TOTAL: \$267,016
Prin. Invest. NASA Tech. Officer CASE Category
Tipton, C. M. ARC/Hargers, A. R. 59-Life Sci, NEC
Overton, J. M.

NAG 3-485 University of Arizona 1282
Nonlinear interactions in a heated subsonic jet
Period Obligations
11/15/83-06/30/87 FY88: TOTAL: \$164,144
Prin. Invest. NASA Tech. Officer CASE Category
Balsa, T. F. LERC/Stone, J. R. 41-Aero Engr
LERC/Miles, J. H.

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAG 3-714 University of Arizona 1283
 Identification of hi-performance system and component technology for unmanned satellite electrical power systems for use beyond the year 2000
Period *Obligations*
 05/16/86-12/15/88 FY88: \$4,550 TOTAL: \$119,037
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Maisel, J. LERC/Myers, I. T. 42-Astro Engr

NAG 5-560 University of Arizona 1291
 Observations of hydrogen emission from Jupiter
Period *Obligations*
 06/01/85-07/31/89 FY88: \$42,800 TOTAL: \$112,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shemansky, D. GSFC/Kondo, Y. 11-Astronomy
 Holberg, J. B.

NAG 3-723 University of Arizona 1284
 Role of gravity on macro segregation in alloys
Period *Obligations*
 05/09/86-04/28/89 FY88: \$152,996 TOTAL: \$452,514
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Poirier, D. R. LERC/Chait, A. 47-Materials Engr
 Chen, C. F.
 Heinrich, J. C.

NAG 5-625 University of Arizona 1292
 In situ investigation of the neutral population between 200 and 1500 km altitude
Period *Obligations*
 04/15/84-03/31/89 FY88: \$110,000 TOTAL: \$323,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ksieh, K. C. GSFC/Early, L. J. 13-Physics
 Fan, C. Y.
 Curtis, C. C. GSFC/Pless, R. H.

NAG 3-781 University of Arizona 1285
 Nonlinear evolution of coherent structures in supersonic shear layers
Period *Obligations*
 02/08/87-03/06/89 FY88: \$22,864 TOTAL: \$42,864
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Balsa, T. LERC/Miles, J. H. 41-Aero Engr
 LERC/Rice, E.

NAG 5-637 University of Arizona 1293
 EUV spectral imager 400 1300A to Torus and comets
Period *Obligations*
 07/01/86-06/30/88 FY88: TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Broadfoot, A. L. GSFC/Early, L. J. 13-Physics
 GSFC/Pless, R. H.

NAG 5-38 University of Arizona 1286
 Study of the hottest white dwarfs from the Palomar-Green study
Period *Obligations*
 04/01/80-09/30/88 FY88: TOTAL: \$162,119
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Green, R. GSFC/Kondo, Y. 11-Astronomy
 Schmidt, M.
 Bechtold, J.

NAG 5-703 University of Arizona 1294
 The white dwarfs and inna accretion discs of three unusual dwarf voaee
Period *Obligations*
 09/01/85-08/31/89 FY88: TOTAL: \$18,315
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wade, R. A. GSFC/Kondo, Y. 11-Astronomy
 Liebert, J. W.

NAG 5-326 University of Arizona 1287
 Deformation within and between lithospheric plates: A finite element analysis
Period *Obligations*
 06/01/83-10/31/88 FY88: TOTAL: \$96,635
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Richardson, R. M. GSFC/Welker, J. 32-Geological Sci

NAG 5-790 University of Arizona 1295
 Remote sensing gamma ray spectroscopy
Period *Obligations*
 07/01/86-01/31/89 FY88: TOTAL: \$34,024
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Boynton, W. V. GSFC/Trombka, J. I. 11-Astronomy

NAG 5-434 University of Arizona 1288
 IUE observations of Saturn's rings white dwarf lyman alpha profiles
Period *Obligations*
 07/01/84-07/31/89 FY88: \$41,400 TOTAL: \$148,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Holbert, J. B. GSFC/Kondo, Y. 11-Astronomy
 Sion, E. M.

NAG 5-831 University of Arizona 1296
 Holographic particle detection
Period *Obligations*
 08/01/86-11/30/88 FY88: \$15,000 TOTAL: \$29,344
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bowen, T. GSFC/Balasubrahmanya, V. K. 13-Physics
 Stark, R. W. GSFC/Streitmatter, R. E.
 Huffman, D. R.

NAG 5-441 University of Arizona 1289
 A study of strongly magnetic variable white dwarfs
Period *Obligations*
 07/15/84-08/31/89 FY88: \$47,400 TOTAL: \$154,223
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Polidan, R. S. GSFC/Kondo, Y. 11-Astronomy
 Peters, G. J.
 Carone, T. E.

NAG 5-859 University of Arizona 1297
 The absolute radiometer calibration of the advanced very high resolution radiometer
Period *Obligations*
 11/01/86-02/28/89 FY88: \$40,000 TOTAL: \$132,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Slater, P. N. GSFC/Osecoff, H. 19-Phys Sci, NEC
 GSFC/Hall, F. G.

NAG 5-444 University of Arizona 1290
 Geoid as an indicator of large scale mantle connection and the proper motion of hot spots
Period *Obligations*
 07/15/84-10/14/88 FY88: TOTAL: \$121,086
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Chase, C. G. GSFC/Welker, J. E. 32-Geological Sci

NAG 5-861 University of Arizona 1298
 Detection of land surface change in arid regions application of a surface structure model in the Sonoran desert
Period *Obligations*
 11/15/86-02/14/89 FY88: \$53,000 TOTAL: \$111,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hutchinson, C. F. GSFC/Oseroff, H. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAG 5-879	University of Arizona	1299	NAG 8-667	University of Arizona	1307
Antiprotons in the cosmic rays			A comparison of X ray and infrared properties of Seyfert 1 galaxies		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/15/87-02/14/89	FY88: \$41,000	TOTAL: \$81,757	08/01/87-07/31/89	FY88:	TOTAL: \$11,365
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowen, T.	GSFC/Ormes, J. A.	13-Physics	Rieke, G. H.	MSFC/Harper, B. A.	11-Astronomy
			Lebofsky, M. J.		
NAG 5-928	University of Arizona	1300	NAG 8-694	University of Arizona	1308
Interstellar medium scattering properties			Scale up and batch to batch variability problems in solid rocket boosters		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/15/87-06/14/88	FY88:	TOTAL: \$15,000	11/15/87-09/14/88	FY88: \$49,276	TOTAL: \$49,276
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sandel, B. R.	GSFC/Clarke, J. T.	11-Astronomy	Ramohalli, K. N.	MSFC/Frederick, J.	13-Physics
				MSFC/Tumlinson, J. L.	
NAG 5-953	University of Arizona	1301	NAG 8-716	University of Arizona	1309
The nature of the pulsed light in intermediate polace			Enhanced hybridoma production using electrofusion under microgravity		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/89	FY88:	TOTAL: \$8,212	05/01/88-04/30/89	FY88: \$350,000	TOTAL: \$350,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berriman, G.	GSFC/Kondo, Y.	11-Astronomy	Sammons, D. W.	MSFC/Snyder, R. S.	11-Astronomy
Schmidt, G.					
NAG 5-965	University of Arizona	1302	NAG 9-37	University of Arizona	1310
Very hot subdrawfs			Rare earths and other trace elements in separates from chondrites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/89	FY88: \$8,000	TOTAL: \$27,758	03/01/83-05/01/89	FY88: \$170,000	TOTAL: \$885,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebert, J. W.	GSFC/Kondo, Y.	11-Astronomy	Boynton, W. V.	JSC/Browne, I. D.	12-Chemistry
Green, R.					
NAG 8-110	University of Arizona	1303	NAG 9-39	University of Arizona	1311
Theory of auroras on the outer planets			Meteoritic basalts		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/12/88-05/11/89	FY88: \$26,527	TOTAL: \$26,527	02/01/83-02/01/89	FY88: \$138,000	TOTAL: \$591,957
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sandel, B. R.	MSFC/Moore, T. E.	42-Astro Engr	Drake, M. J.	JSC/Browne, I. D.	12-Chemistry
Yalle, R.	MSFC/Fields, S. A.				
NAG 8-583	University of Arizona	1304	NAG 9-135	University of Arizona	1312
Optical spectroscopy of a complete X ray selected sample of stars: The expanded Einstein medium sensitivity survey			Investigation of hafnium isotopes in Archean sedimentary zircons and terrestrial pre 3.0 ga continental crust		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/86-09/30/87	FY88:	TOTAL: \$13,965	04/01/86-04/01/89	FY88: \$34,000	TOTAL: \$102,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Raerner, H. R.	LARC/Bracalente, E. M.	11-Astronomy	Patchett, P. J.	MSFC/Phinney, W. C.	32-Geological Sci
Rahagavan, R.	LARC/Staton, L. D.				
NAG 8-637	University of Arizona	1305	NAG 9-233	University of Arizona	1313
Data measurements on mount Lemmon			Cosmogenic 14C in meteorites terrestrial rocks		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/08/87-06/30/88	FY88:	TOTAL: \$24,955	06/01/87-06/01/89	FY88: \$26,891	TOTAL: \$63,653
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schotland, R. M.	MSFC/Bilbro, J. W.	31-Atmos Sci	Jull, A. J.	JSC/Browne, I. D.	32-Geological Sci
	MSFC/Fitzjarrald, D. E.				
NAG 8-666	University of Arizona	1306	NAG 9-240	University of Arizona	1314
Analysis of a complete sample of stars from the expanded Einstein medium sensitivity survey			Noble gas studies of early solar system history		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/88	FY88:	TOTAL: \$16,405	06/01/87-06/01/89	FY88: \$10,035	TOTAL: \$27,898
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebert, J.	MSFC/Harper, B. A.	11-Astronomy	Wolfe, J. C.	JSC/Browne, I. D.	32-Geological Sci
Fleming, T. A.					

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAG 9-259	University of Arizona	1315	Research in connection with random loading fatigue crack growth				
<i>Period</i>	<i>Obligations</i>						
10/01/87-01/15/89	FY88: \$16,736	TOTAL: \$16,736					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Ortiz, K.	JSC/Goldstein, S. H.	47-Materials Engr					
NAGW 121	University of Arizona	1316	A program of innovative research in optic and electro-optics for space astronomy				
<i>Period</i>	<i>Obligations</i>						
11/15/80-09/30/87	FY88:	TOTAL: \$841,509					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Angel, J. R.	HQ-E/Rosendhal, J. D.	11-Astronomy					
Stockman, H. S.	HQ-EP/Konkel, R. M.						
Woolf, H. J.							
NAGW 247	University of Arizona	1317	Cometary spectroscopy				
<i>Period</i>	<i>Obligations</i>						
11/01/81-10/31/88	FY88:	TOTAL: \$276,696					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Larson, S. M.	HQ-EL/Brinton, H. C.	11-Astronomy					
	HQ-EL/Rahe, J. H.						
NAGW 285	University of Arizona	1318	Hydrogenomorphic studies of Mars				
<i>Period</i>	<i>Obligations</i>						
01/15/82-11/29/88	FY88: \$35,000	TOTAL: \$263,874					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Baker, V. R.	HQ-EL/Underwood, J.	32-Geological Sci					
	HQ-EL/Boyce, J. M.						
NAGW 340	University of Arizona	1319	Origin and evolution of planetary atmospheres				
<i>Period</i>	<i>Obligations</i>						
07/01/82-06/30/89	FY88: \$99,197	TOTAL: \$655,257					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Lewis, J. S.	HQ-EL/Fox, K.	31-Atmos Sci					
	HQ-EL/Quaide, W. L.						
NAGW 428	University of Arizona	1320	Crater modification by gravity				
<i>Period</i>	<i>Obligations</i>						
04/15/83-12/31/88	FY88: \$105,000	TOTAL: \$597,609					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Melosh, H. J.	HQ-EL/Underwood, J. R.	32-Geological Sci					
	HQ-EL/Scott, D.						
NAGW 500	University of Arizona	1321	Venus aeronomy				
<i>Period</i>	<i>Obligations</i>						
10/01/83-02/28/89	FY88: \$11,500	TOTAL: \$130,862					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Kumar, S.	HQ-EL/Fox, K.	31-Atmos Sci					
	HQ-EL/Quaide, W. L.						
NAGW 520	University of Arizona	1322	Detector evaluation for a deep optical infrared survey				
<i>Period</i>	<i>Obligations</i>						
02/01/84-10/31/88	FY88: \$335,000	TOTAL: \$1,104,873					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Lebofsky, G. J.	HQ-EZ/Stachnik, R. V.	11-Astronomy					
	HQ-EZ/Weiler, E. J.						
NAGW 546	University of Arizona	1323	Mars ball project				
<i>Period</i>	<i>Obligations</i>						
03/01/84-08/31/88	FY88:	TOTAL: \$70,470					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Hunten, D. M.	HQ-EL/Quaide, W. L.	49-Engr, NEC					
	HQ-EL/Gold, R.						
NAGW 587	University of Arizona	1324	Stellar observations with the Voyager EUV objective grating spectrograph				
<i>Period</i>	<i>Obligations</i>						
03/01/84-05/31/88	FY88:	TOTAL: \$326,000					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Holberg, J.	HQ-EZ/Stachnik, R. V.	11-Astronomy					
	HQ-EZ/Weiler, E. J.						
NAGW 596	University of Arizona	1325	Studies of planetary extended atmospheres				
<i>Period</i>	<i>Obligations</i>						
02/01/84-12/31/88	FY88: \$39,957	TOTAL: \$274,837					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Hunter, D. M.	HQ-EL/Brinton, H. C.	11-Astronomy					
	HQ-EL/Rahe, J. H.						
NAGW 610	University of Arizona	1326	Scientific program in planetary atmospheres studies				
<i>Period</i>	<i>Obligations</i>						
05/01/84-07/31/88	FY88:	TOTAL: \$291,000					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Broadfoot, A. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci					
	HQ-EL/Quaide, W. L.						
NAGW 649	University of Arizona	1327	Particle excitation airglow and H2 vibrational disequilibrium in the atmosphere of Jupiter				
<i>Period</i>	<i>Obligations</i>						
09/01/84-10/31/88	FY88: \$60,000	TOTAL: \$230,000					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Shemansky, D. E.	HQ-EL/Fox, K.	31-Atmos Sci					
	HQ-EL/Quaide, W. L.						
NAGW 680	University of Arizona	1328	Origin of the Earth's Moon				
<i>Period</i>	<i>Obligations</i>						
01/01/85-12/31/87	FY88:	TOTAL: \$100,203					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Drake, M. J.	HQ-E/Rosendhal, J. D.	19-Phys Sci, NEC					
	HQ-EP/Konkel, R. M.						
NAGW 693	University of Arizona	1329	Establishment of a center for organic separations and pharmaceutical research				
<i>Period</i>	<i>Obligations</i>						
10/15/84-12/31/88	FY88: \$450,000	TOTAL: \$1,800,000					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Bier, M.	HQ-EN/Schmoll, K. S.	51-Biological Sci					
NAGW 716	University of Arizona	1330	Physical studies of fast-moving asteroids				
<i>Period</i>	<i>Obligations</i>						
02/01/85-01/31/89	FY88: \$66,988	TOTAL: \$264,385					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Wisniewski, W. Z.	HQ-EL/Brinton, H. C.	31-Atmos Sci					
	HQ-EL/Rahe, J. H.						

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAGW 744	University of Arizona	1331	NAGW 942	University of Arizona	1339
A study of the Io plasma torus			Measuring absorption coefficients of frozen volatiles		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/15/85-07/14/88	FY88:	TOTAL: \$123,600	07/15/86-01/14/89	FY88: \$7,656	TOTAL: \$37,648
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shemansky, D. E.	HQ-EL/Fox, K. HQ-EL/Quaide, W. L.	31-Atmos Sci	Fink, U.	HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	32-Geological Sci
NAGW 763	University of Arizona	1332	NAGW 944	University of Arizona	1340
Formation of stars and stellar systems			Dynamical evolution of the Galileon satellites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/15/85-01/14/90	FY88: \$205,059	TOTAL: \$511,347	07/01/86-11/30/88	FY88: \$24,000	TOTAL: \$54,005
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
White, S. D.	HQ-ES/Mellott, M. M. HQ-EZ/Weiler, E. J.	11-Astronomy	Greenberg, R. J.	HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	32-Geological Sci
NAGW 804	University of Arizona	1333	NAGW 960	University of Arizona	1341
The CCD transit instrument deep survey			Observational studies of Saturn's rings		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/85-03/31/89	FY88: \$90,379	TOTAL: \$344,480	07/15/86-12/31/88	FY88: \$40,000	TOTAL: \$68,697
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGraw, J. T.	HQ-EZ/Stachnik, R. V. HQ-EZ/Bogges, N. W.	11-Astronomy	Porco, C. C.	HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	32-Geological Sci
NAGW 867	University of Arizona	1334	NAGW 962	University of Arizona	1342
Speckle interferometry of asteroids			Theoretical and observational studies of the interaction of outer planet magnetospheres with satellite and rings		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/86-01/31/88	FY88:	TOTAL: \$73,003	08/01/86-11/30/88	FY88: \$54,000	TOTAL: \$102,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drummond, J. D.	HQ-EL/Brinton, H. C. HQ-EL/Bergstrahl, J. T.	11-Astronomy	Hood, L. L.	HQ-EE/Mellot, M. M. HQ-EE/Eastman, T. E.	13-Physics
NAGW 887	University of Arizona	1335	NAGW 1019	University of Arizona	1343
Development of CCD scanning for asteroids/comets			The planet Mercury		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/85-11/30/89	FY88: \$122,844	TOTAL: \$272,861	11/01/86-10/31/87	FY88:	TOTAL: \$47,341
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gehrels, T.	HQ-EL/Brinton, H. C. HQ-EL/Rahe, J. H.	11-Astronomy	Gehrels, T.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
NAGW 896	University of Arizona	1336	NAGW 1029	University of Arizona	1344
Radiometric calibration of the Earth observing systems EOS imaging sensors			Planet formation and evolution collisional and dynamical processes		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/15/86-05/14/89	FY88: \$250,000	TOTAL: \$650,000	12/01/86-11/30/88	FY88: \$75,000	TOTAL: \$135,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Slater, P.	HQ-EE/Tuyahov, A. J.	39-Env Sci, NEC	Greenberg, R. J.	HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	32-Geological Sci
NAGW 909	University of Arizona	1337	NAGW 1039	University of Arizona	1345
Observations and interpretation of middle atmospheric radiative and photochemical processes			Theoretical studies of volatile processes in the atmospheres and surfaces of outer solar system satellites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-02/28/89	FY88: \$78,978	TOTAL: \$210,333	02/15/87-02/14/89	FY88: \$19,975	TOTAL: \$39,695
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hood, L. L.	HQ-EE/Miller, T. L. HQ-EE/Prather, M. J.	31-Atmos Sci	Lunine, J. I.	HQ-EL/Fox, K. HQ-EL/Quaide, W. L.	31-Atmos Sci
NAGW 912	University of Arizona	1338	NAGW 1059	University of Arizona	1346
Measuring plant biomass and leaf area index in arid lands with an Earth observing system EOS			Composition and distribution of Mars surface materials		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-09/30/87	FY88:	TOTAL: \$100,000	01/01/87-12/31/89	FY88:	TOTAL: \$62,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hutchinson, C. F. Heute, A.	HQ-EE/Tuyahov, A. J.	39-Env Sci, NEC	Singer, R. B.	HQ-EL/Underwood, J. HQ-EL/Boyce, J. M.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAGW 1069	University of Arizona	1347	NAGW 1184	University of Arizona	1355
Development of a molecular and mineralogical analyzer for in situ analysis on a comet			Multiwave length observations of the particles properties of the uranian ring system		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/87-03/31/89	FY88:	TOTAL: \$89,000	09/15/87-09/14/88	FY88:	TOTAL: \$33,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boynton, W. V.	HQ-EL/Evans, L. G.	32-Geological Sci	Holberg, J. B.	HQ-EL/Quaide, W. L.	11-Astronomy
	HQ-EL/Quaide, W. L.			HQ-EL/Boyce, J. M.	
NAGW 1073	University of Arizona	1348	NAGW 1203	University of Arizona	1356
Telescience testbed program initiation of testing and evaluation of remote control			An analysis of radial diffusion and absorption of trapped particles in the inner uranian magnetosphere using CRS and LEP data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/87-01/31/88	FY88:	TOTAL: \$98,253	11/01/87-10/31/88	FY88: \$137,479	TOTAL: \$137,479
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schooley, L. C.	HQ-E/Schmerling, E. R.	19-Phys Sci, NEC	Hood, L. L.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
Triffet, T.	HQ-E/Burnett, P.			HQ-EL/Parks, G.	
NAGW 1097	University of Arizona	1349	NAGW 1207	University of Arizona	1357
Development of a cryogenic cosmic dust collector			Lyman alpha emissions from Uranus		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/87-11/30/88	FY88:	TOTAL: \$20,000	10/01/87-09/30/88	FY88:	TOTAL: \$51,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fan, C. Y.	HQ-EL/Evans, L. G.	13-Physics	Yelle, R. V.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Quaide, W. L.			HQ-EL/Brinton, H. C.	
NAGW 1132	University of Arizona	1350	NAGW 1208	University of Arizona	1358
Planetary astronomy rings satellites and asteroids			Interpretation of Voyager UVS observations of occultations by the atmosphere of Uranus		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/87-12/31/89	FY88: \$21,953	TOTAL: \$60,705	11/01/87-10/31/88	FY88: \$69,000	TOTAL: \$69,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greenberg, R. J.	HQ-EL/Rahe, J. H.	11-Astronomy	Sandel, B. R.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Rahe, J. H.			HQ-EL/Brinton, H. C.	
NAGW 1146	University of Arizona	1351	NAGW 1212	University of Arizona	1359
Infrared reflectance study of carbonaceous materials			Cratering chemical and thermal investigation of uranian satellites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/87-12/31/88	FY88: \$19,995	TOTAL: \$29,931	09/15/87-09/14/88	FY88:	TOTAL: \$49,984
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewis, J. S.	HQ-EL/Underwood, J. R.	32-Geological Sci	Strom, R. G.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Boyce, J. M.			HQ-EL/Underwood, J.	
NAGW 1147	University of Arizona	1352	NAGW 1214	University of Arizona	1360
Meteorites and the early solar system			In the aurora of Uranus		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/87-04/30/89	FY88: \$6,000	TOTAL: \$56,191	10/01/87-09/30/88	FY88:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gehrels, T.	HQ-EL/Boyce, J. M.	32-Geological Sci	Sandel, B. R.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Scott, D. H.			HQ-EE/Parks, G.	
NAGW 1181	University of Arizona	1353	NAGW 1217	University of Arizona	1361
EUV albedo and hydrocarbon photochemistry on Uranus			Efficient use of multiresolution multispectral remote sensing data in preparation for DOS		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$62,200	TOTAL: \$62,200	10/01/87-09/30/88	FY88:	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yelle, R. V.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC	Hutchinson, C.	HQ-EE/Tuyahov, A. J.	39-Env Sci, NEC
	HQ-EL/Brinton, H. C.				
NAGW 1182	University of Arizona	1354	NAGW 1280	University of Arizona	1362
Model analysis of the particle excited atmosphere of Uranus			Descent imager spectral radiometer for the Titan entry of the Cassini mission		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$77,400	TOTAL: \$77,400	01/01/88-12/31/88	FY88: \$159,225	TOTAL: \$159,225
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shemansky, D. E.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC	Tomasko, M.	HQ-EL/Evans, L. G.	32-Geological Sci
	HQ-EL/Brinton, H. C.			HQ-EL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAGW 1283	University of Arizona	1363	NAGW 1376	University of Arizona	1371
The radial velocity search for extrasolar planets			Participation in the soviet international Phobos mission		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/87-11/30/88	FY88: \$95,167	TOTAL: \$95,167	06/01/88-12/31/88	FY88: \$9,972	TOTAL: \$9,972
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McMillan, R. S.	HQ-EL/Brinton, H. C. HQ-EL/Rahe, J. H.	11-Astronomy	Smith, B. A.	HQ-EL/Brinton, H. C.	13-Physics
NAGW 1285	University of Arizona	1364	NAGW 1408	University of Arizona	1372
Space infrared detector development			Planetary astronomy of Mars		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/15/88-05/14/89	FY88: \$149,327	TOTAL: \$149,327	07/01/88-06/30/89	FY88: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, E.	HQ-EZ/Gillett, F. C.	11-Astronomy	Singer, R. B.	HQ-EL/Rahe, J. H.	11-Astronomy
NAGW 1300	University of Arizona	1365	NAGW 1414	University of Arizona	1373
Asteroids II			Martian collapse terrains		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/88-04/30/89	FY88: \$54,934	TOTAL: \$54,934	07/01/88-06/30/89	FY88: \$10,260	TOTAL: \$10,260
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gehrels, T.	HQ-EL/Brinton, H. C. HQ-EL/Rahe, J. H.	11-Astronomy	Croft, S. K.	HQ-EL/Underwood, J. R.	32-Geological Sci
NAGW 1325	University of Arizona	1366	NAGW 1443	University of Arizona	1374
Effects of hypogravity or symptomogenesis in cell culture			Wavelength dependence of iras asteroid diameters and albedos		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/88-03/31/89	FY88: \$45,000	TOTAL: \$45,000	09/01/88-08/31/89	FY88: \$29,994	TOTAL: \$29,994
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gruener, R. P.	HQ-EB/Halstead, T. W.	51-Biological Sci	Lebofsky, L. A.	HQ-EL/Quaide, W. L.	11-Astronomy
NAGW 1329	University of Arizona	1367	NAS 2-12498	University of Arizona	1375
Analysis of the distribution and optical properties of aerosols in the atmosphere of Uranus using Voyager imaging data			Operation and maintenance of a 15 meter telescope		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/88-03/31/89	FY88: \$79,000	TOTAL: \$79,000	09/29/86-07/31/89	FY88: \$118,272	TOTAL: \$397,390
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tomasko, M. G.	HQ-EL/Quaide, W. L.	31-Atmos Sci	Rieke, M.	ARC/Haughney, L. C.	11-Astronomy
NAGW 1332	University of Arizona	1368	NAS 2-12578	University of Arizona	1376
Center for the utilization of local planetary resources			Development of multiband IMA photometer for space infrared telescope		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/88-05/31/89	FY88: \$499,090	TOTAL: \$499,090	03/12/87-10/31/88	FY88: \$650,000	TOTAL: \$1,486,051
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewis, J. S. Ramohalli, K. N.	HQ-RS/Hartman, S. C.	49-Engr, NEC	Rieke, G.	ARC/Ramos, R.	11-Astronomy
NAGW 1359	University of Arizona	1369	NAS 3-25522	University of Arizona	1377
Monitoring deforestation in the Guinea highlands using grid and EOS approach			Finish machining antenna reflector		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/88-06/30/89	FY88: \$50,000	TOTAL: \$50,000	08/12/88-12/12/88	FY88: \$143,162	TOTAL: \$143,162
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hutchinson, C. F.	HQ-EE/Miller, T. L. HQ-EE/Tuyahov, A. J.	39-Env Sci, NEC	Somner, R. E. Kettleon, D.	LERC/Sharp, G. R.	49-Engr, NEC
NAGW 1360	University of Arizona	1370	NAS 5-26869	University of Arizona	1378
Dynamics of the terrestrial impact origin of tektites			Origin of plasmas in the Earth's neighborhood (OPEN) mission		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/88-02/28/89	FY88: \$25,000	TOTAL: \$25,000	05/14/82-06/30/88	FY88:	TOTAL: \$68,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vickery, A. M.	HQ-EL/Underwood, J. R.	32-Geological Sci	Sonett, C. P.	GSFC/O'brien, J. J.	13-Physics
NAGW 1360	University of Arizona	1370	NAS 5-30008	University of Arizona	1379
Dynamics of the terrestrial impact origin of tektites			The Hubble space telescope near infrared camera and multi-object spectrometer		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/88-02/28/89	FY88: \$25,000	TOTAL: \$25,000	09/30/86-06/30/89	FY88: \$2,352,000	TOTAL: \$3,540,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vickery, A. M.	HQ-EL/Underwood, J. R.	32-Geological Sci	Thompson, R. I.	GSFC/Sours, W. P. GSFC/Shannon, J. L.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAS 5-30124	University of Arizona	1380	NASW 4245	University of Arizona	1388
Scientific interpretation of GPMS data			Miniature monochromatic imager		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/87-08/30/90	FY88:	TOTAL: \$25,000	09/15/87-09/14/89	FY88: \$99,845	TOTAL: \$199,845
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Hunten, D.	GSFC/Niemann, H.	31-Atmos Sci	Broadfoot, A. L.	HQ-EL/Mahaffy, P. HQ-EL/Quaide, W.	13-Physics
NAS 8-32950	University of Arizona	1381	NAS10-11390	University of Arizona	1389
Hormone purification by isoelectric focusing in space			Lightning charges and thunderstorm currents at the Kennedy Space Center		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/29/78-05/31/89	FY88: \$60,000	TOTAL: \$936,271	03/18/87-04/30/89	FY88: \$85,000	TOTAL: \$145,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Bier, M.	MSFC/Jax, D. MSFC/Barnett, B.	59-Life Sci, NEC	Krider, E. P.	KSC/Wesenberg, R. P.	31-Atmos Sci
NAS 8-36278	University of Arizona	1382	NCA 2-196	University of Arizona	1390
Mesoscale structure of the Arizona monsoon			An assessment of the effects of Mach number on dynamic stall		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/11/86-09/30/88	FY88: \$21,188	TOTAL: \$242,188	03/01/87-06/30/88	FY88:	TOTAL: \$17,380
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Gall, R. L.	MSFC/Kaufman, J. W. MSFC/Smith, G. T.	31-Atmos Sci	Fung, K. Y.	ARC/Carr, L. W.	41-Aero Engr
NAS 8-36477	University of Arizona	1383	NCA 2-349	University of Arizona	1391
Optical studies of lightning			Plant canopy reflectance a transport theory investigation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/26/85-09/26/88	FY88: \$39,510	TOTAL: \$203,002	09/01/88-08/31/89	FY88: \$10,398	TOTAL: \$10,398
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Krider, E. P.	MSFC/Christian, H. J. MSFC/Blakeslee, R.	13-Physics	Ganapol, B. D.	ARC/Lawless, J. G.	39-Env Sci, NEC
NAS 9-16838	University of Arizona	1384	NCC 2-329	University of Arizona	1392
Lymphocyte proliferation in weightlessness			Analysis of turbulence encounters using airline digital flight records		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/23/83-12/01/90	FY88: \$22,000	TOTAL: \$58,000	01/01/85-12/31/88	FY88: \$15,456	TOTAL: \$81,973
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Criswell, B. S.	JSC/Newkirk, K.	59-Life Sci, NEC	Parks, E. K.	ARC/Wingrove, R. C. ARC/Bach, R. E.	41-Aero Engr
NASW 3627	University of Arizona	1385	NCC 2-426	University of Arizona	1393
Comet Halley neutral gas experiment			Design of the SIRTf primary mirror mount		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/82-03/31/88	FY88:	TOTAL: \$304,898	06/01/86-10/31/88	FY88: \$150,000	TOTAL: \$350,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Hsieh, K. C.	HQ-EL/Brinton, H. C. HQ-EL/Brunk, W.	11-Astronomy	Richard, R. M. Vukobratovich, D.	ARC/Melugin, R. K.	99-Multi-Discip
NASW 3703	University of Arizona	1386	NCC 2-439	University of Arizona	1394
Space astronomy infrared detector development			Innovative optical approaches to space astronomy		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/01/82-05/15/88	FY88:	TOTAL: \$754,420	10/01/86-09/30/89	FY88:	TOTAL: \$106,595
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Low, F. J.	HQ-EZ/Boggess, N. W. HQ-EZ/Weiler, E. J.	11-Astronomy	Levy, E. H. Gatewood, G. D. Lawrence, G.	ARC/Nishioka, K. ARC/Scargle, J. D.	11-Astronomy
NASW 4195	University of Arizona	1387	NCC 2-525	University of Arizona	1395
Optical synchrometer for planetary entry probes gisnous			A simulation environment for laboratory management of robot organizations		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/86-09/31/87	FY88:	TOTAL: \$49,998	10/01/87-11/30/88	FY88: \$145,051	TOTAL: \$145,051
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Tomasko, M. G.	HQ-EE/Quaide, W.	31-Atmos Sci	Zeigler, B. P.	ARC/Friedland, P. E. ARC/Rosenthal, D. A.	22-Computer Science

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NGL 03-002-002	University of Arizona	1396			
Planetary, spectroscopic, selenodetic and physical studies of lunar surface					
<i>Period</i>		<i>Obligations</i>			
08/12/61-05/31/88	FY88: \$81,200	TOTAL: \$3,580,128			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Smith, B. A.	HQ-EL/Brinton, H. C.	11-Astronomy			
	HQ-EL/Rahe, J. H.				
NGT 00-050-050	University of Arizona	1404			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/16/86-08/15/89	FY88: \$36,000	TOTAL: \$53,736			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hunten, D. M.	HQ-LE/Owens, F. C.	32-Geological Sci			
NGT 00-050-051	University of Arizona	1405			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/25/86-08/14/89	FY88: \$33,025	TOTAL: \$68,013			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Drake, M. J.	HQ-LE/Owens, F. C.	12-Chemistry			
NGT 00-050-074	University of Arizona	1406			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/86-07/31/89	FY88: \$35,983	TOTAL: \$53,977			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fasel, H.	HQ-LE/Owens, F. C.	41-Aero Engr			
NGT 00-050-076	University of Arizona	1407			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/15/86-08/14/89	FY88: \$36,000	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Glezer, A.	HQ-LE/Owens, F. C.	41-Aero Engr			
NGT 00-050-186	University of Arizona	1408			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/88	FY88:	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lewis, J. S.	HQ-XE/Owens, F. C.	11-Astronomy			
NGT 00-050-234	University of Arizona	1409			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/15/87-08/14/89	FY88: \$35,900	TOTAL: \$35,900			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Melosh, H. J.	HQ-XE/Owens, F. C.	32-Geological Sci			
NGT 00-050-235	University of Arizona	1410			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/16/87-08/15/89	FY88: \$36,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Boynton, W. V.	HQ-XE/Owens, F. C.	32-Geological Sci			
NGT 00-050-270	University of Arizona	1411			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Levine, M. L.	HQ-XE/Owens, F. C.	51-Biological Sci			
Bier, M.					
NGT 00-050-273	University of Arizona	1412			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sorooshian, S.	HQ-EE/Asrar, G.	39-Env Sci, NEC			
Humes, K. S.	HQ-EE/Ruzek, M.				
NGL 03-002-081	University of Arizona	1397			
Photometry and polarimetry of minor planets					
<i>Period</i>		<i>Obligations</i>			
03/14/66-09/30/88	FY88: \$20,000	TOTAL: \$831,187			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Taylor, R. C.	HQ-EL/Brinton, H. C.	11-Astronomy			
	HQ-EL/Rahe, J. H.				
NGR 03-002-269	University of Arizona	1398			
Operation of a 30 cm flying infrared telescope					
<i>Period</i>		<i>Obligations</i>			
05/04/71-05/31/89	FY88: \$54,886	TOTAL: \$1,145,030			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Low, F. J.	HQ-EZ/Caroff, L. J.	11-Astronomy			
	HQ-EZ/Weiler, E. J.				
NGR 03-002-371	University of Arizona	1399			
Far infrared observations of galactic and extra-galactic sources of radiation					
<i>Period</i>		<i>Obligations</i>			
09/01/73-12/14/88	FY88: \$90,000	TOTAL: \$1,184,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hoffmann, W.	HQ-EZ/Stachnik, R. V.	11-Astronomy			
	HQ-EZ/Weiler, E. J.				
NGT 00-050-019	University of Arizona	1400			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
07/01/86-06/30/88	FY88: \$17,500	TOTAL: \$35,190			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tischler, M. E.	HQ-LE/Owens, F. C.	51-Biological Sci			
NGT 00-050-027	University of Arizona	1401			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/86-05/31/89	FY88: \$18,000	TOTAL: \$53,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fink, U.	HQ-LE/Owens, F. C.	13-Physics			
NGT 00-050-048	University of Arizona	1402			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/15/86-08/13/89	FY88: \$36,000	TOTAL: \$53,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lebofsky, L. A.	HQ-LE/Owens, F. C.	99-Multi-Discip			
NGT 00-050-049	University of Arizona	1403			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/16/86-08/15/89	FY88: \$36,000	TOTAL: \$53,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hubbard, W. B.	HQ-LE/Owens, F. C.	32-Geological Sci			

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NGT 00-050-274	University of Arizona	1413	NGT 03-002-803	University of Arizona	1422
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000	08/16/85-08/15/88	FY88: \$17,800	TOTAL: \$53,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Teschlea, M. E.	HQ-XE/Owens, F. C.	19-Phys Sci, NEC	Lewis, J. S.	HQ-LE/Owens, F. C.	11-Astronomy
Kirby, C.					
NGT 00-050-287	University of Arizona	1414	NGT 03-002-804	University of Arizona	1423
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$17,992	TOTAL: \$17,992	08/16/85-08/15/87	FY88:	TOTAL: \$35,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinberg, M. C.	HQ-XE/Owens, F. C.	12-Chemistry	Smith, B. A.	HQ-LE/Owens, F. C.	11-Astronomy
NGT 00-050-303	University of Arizona	1415	NGT 03-002-805	University of Arizona	1424
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000	08/20/85-08/19/88	FY88: \$16,485	TOTAL: \$49,601
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shemansky, D. E.	HQ-XE/Owens, F. C.	13-Physics	Lebofsky, M. J.	HQ-LE/Owens, F. C.	11-Astronomy
NGT 00-050-305	University of Arizona	1416	NGT 03-002-806	University of Arizona	1425
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000	08/01/85-07/31/87	FY88:	TOTAL: \$33,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holberg, J. B.	HQ-XE/Owens, F. C.	13-Physics	Levy, E. H.	HQ-LE/Owens, F. C.	32-Geological Sci
NGT 00-050-307	University of Arizona	1417	NGT 03-002-807	University of Arizona	1426
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/15/88-08/14/89	FY88: \$17,270	TOTAL: \$17,270	09/01/85-08/31/88	FY88: \$16,750	TOTAL: \$50,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pearlstein, A. J.	HQ-XE/Owens, F. C.	21-Mathematics	Rieke, G.	HQ-LE/Owens, F. C.	11-Astronomy
NGT 00-050-319	University of Arizona	1418	NGT 03-002-808	University of Arizona	1427
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$17,956	TOTAL: \$17,956	06/01/85-12/31/87	FY88:	TOTAL: \$33,445
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, R. N.	HQ-XE/Owens, F. C.	11-Astronomy	Krider, E. P.	HQ-LE/Owens, F. C.	31-Atmos Sci
NGT 00-050-331	University of Arizona	1419	NGT 03-002-809	University of Arizona	1428
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000	08/01/85-10/31/88	FY88: \$18,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Green, R.	HQ-XE/Owens, F. C.	11-Astronomy	Fasel, H.	HQ-LE/Owens, F.	46-Mech Engr
NGT 00-050-382	University of Arizona	1420	NSG 7020	University of Arizona	1429
NASA graduate student researchers program			Investigation of lunar induced and permanent magnetism in the lunar data analysis and synthesis program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/88-12/31/89	FY88: \$18,000	TOTAL: \$18,000	03/01/74-07/31/89	FY88: \$52,000	TOTAL: \$1,040,080
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Low, F.	HQ-XE/Owens, F. C.	13-Physics	Hood, L. L.	HQ-EL/Underwood, J. R.	32-Geological Sci
				HQ-EL/Boyce, J. M.	
NGT 00-070-071	University of Arizona	1421	NSG 7045	University of Arizona	1430
NASA graduate student researchers program			Interiors of the giant planets		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/88-12/31/88	FY88: \$18,000	TOTAL: \$18,000	04/01/74-03/31/89	FY88: \$38,229	TOTAL: \$535,121
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramohalli, K.	HQ-XE/Owens, F. C.	41-Aero Engr	Hubbard, W. B.	HQ-EL/Brinton, H. C.	11-Astronomy
				HQ-EL/Rahe, J. H.	

**NASA'S UNIVERSITY PROGRAM
ARKANSAS (Continued)**

NAG 3-920 University of Arkansas - Fayetteville 1446
Staebler-Wronski effect
Period *Obligations*
07/01/88-09/30/88 FY88: \$6,998 TOTAL: \$6,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hermann, A. M. LERC/Weizer, V. G. 45-Elec Engr
Naseem, H.

NAG 9-81 University of Arkansas - Fayetteville 1447
Chemical and physical studies of type 3 chondrites
Period *Obligations*
03/01/84-03/01/89 FY88: \$70,000 TOTAL: \$250,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sears, D. W. JSC/Browne, I. D. 32-Geological Sci

NGT 00-050-064 University of Arkansas - Fayetteville 1448
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 FY88: \$17,830 TOTAL: \$53,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sears, D. W. HQ-LE/Owens, F. C. 12-Chemistry

NGT 00-070-013 University of Arkansas - Little Rock 1449
NASA graduate student researchers program
Period *Obligations*
02/01/87-01/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mazumder, M. K. HQ-LE/Owens, F. C. 31-Atmos Sci

NAG 2-427 Univ. of Arkansas - Pine Bluff 1450
The neurochemical and neuropharmacological basis of motion sickness
Period *Obligations*
12/15/86-08/14/89 FY88: TOTAL: \$58,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, C. A. ARC/Daunton, N. G. 51-Biological Sci

CALIFORNIA

NAG 1-474 California Institute of Technology 1451
An initiation program on toughness of matrix materials for advanced composites
Period *Obligations*
05/01/84-09/30/88 FY88: TOTAL: \$160,028
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knauss, W. G. LARC/Crews, J. H., Jr. 47-Materials Engr
LARC/Johnston, N. J.

NAG 1-842 California Institute of Technology 1452
Investigation of a contoured wall injector for hypervelocity mixing
Period *Obligations*
03/01/88-02/28/89 FY88: \$255,000 TOTAL: \$255,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marble, F. E. LARC/Anders, J. B. 41-Aero Engr

NAG 2-1 California Institute of Technology 1453
Submillimeter line astronomy on the NASA 91.5 cm/ airborne telescope
Period *Obligations*
10/01/79-09/30/89 FY88: TOTAL: \$644,952
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, T. G. ARC/Haughney, L. C. 11-Astronomy
Keene, J.

NAG 2-476 California Institute of Technology 1454
High resolution far infrared studies of compact regions of star forming molecular clouds
Period *Obligations*
10/01/87-09/30/88 FY88: \$13,691 TOTAL: \$13,691
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mundy, L. ARC/Haughney, L. C. 11-Astronomy

NAG 2-534 California Institute of Technology 1455
High resolutions observations of M33 and 50 and 10UM
Period *Obligations*
10/01/88-09/30/89 FY88: \$14,338 TOTAL: \$14,338
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scoville, N. Z. ARC/Haughney, L. C. 11-Astronomy

NAG 5-315 California Institute of Technology 1456
Dynamic interpretations of geoid anomalies
Period *Obligations*
04/15/83-04/14/88 FY88: TOTAL: \$145,402
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hager, B. H. GSFC/Welker, J. E. 32-Geological Sci

NAG 5-337 California Institute of Technology 1457
Ultraviolet optical infrared spectrophotometry polarimetry of low-high polarization quasars
Period *Obligations*
07/01/83-06/30/87 FY88: TOTAL: \$19,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, R. L. GSFC/Konds, Y. 11-Astronomy
Cohen, M. H.
Maikan, M. A.

NAG 5-508 California Institute of Technology 1458
Investigations of Solar Maximum Mission data
Period *Obligations*
03/01/85-08/31/89 FY88: \$40,000 TOTAL: \$159,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. GSFC/Bullock, G. D. 13-Physics
GSFC/Gurman, J. B.

NAG 5-722 California Institute of Technology 1459
Research relative to the heavy isotope spectrometer telescope
Period *Obligations*
12/01/85-11/30/88 FY88: \$10,000 TOTAL: \$221,019
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, E. C. GSFC/Wales, R. 11-Astronomy
Mewaldt, R. A.

NAG 5-727 California Institute of Technology 1460
Research relative to the Caltech/isotope spectrometer
Period *Obligations*
12/20/85-01/31/89 FY88: \$67,000 TOTAL: \$160,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, E. C. GSFC/Wales, R. O. 11-Astronomy
Melwaldt, R. A.

NAG 5-766 California Institute of Technology 1461
Research relative to the formation and eruption of filaments
Period *Obligations*
04/15/86-04/14/87 FY88: TOTAL: \$40,533
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, S. F. GSFC/Bullock, G. D. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 5-819 California Institute of Technology 1462
Earth rotation and core topography
Period *Obligations*
08/15/86-09/14/87 FY88: TOTAL: \$60,057
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hager, B. H. GSFC/Welker, J. E. 32-Geological Sci

NAG 5-830 California Institute of Technology 1463
The flare sources of interplanetary shocks
Period *Obligations*
08/01/86-07/31/87 FY88: TOTAL: \$43,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. GSFC/Wales, R. O. 13-Physics

NAG 5-842 California Institute of Technology 1464
Intraplate deformation stress in the lithosphere and the driving mechanism for plate motions
Period *Obligations*
09/01/86-03/31/89 FY88: \$58,474 TOTAL: \$142,542
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hager, B. H. GSFC/Frey, H. V. 32-Geological Sci

NAG 5-878 California Institute of Technology 1465
Bevalac studies of magnet Chereukou isotope spectroscopy
Period *Obligations*
02/15/87-10/14/89 FY88: \$11,092 TOTAL: \$20,312
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mewaldt, R. A. GSFC/Ormes, J. F. 13-Physics
Stone, E. C.

NAG 5-946 California Institute of Technology 1466
Accelerated flare electrons using microwave and hard X ray spectroscopy SMM
Period *Obligations*
10/01/87-09/30/89 FY88: TOTAL: \$29,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huford, G. GSFC/Bullock, G. D. 19-Phys Sci, NEC
Zirin, H. GSFC/Gurman, J. B.

NAG 5-958 California Institute of Technology 1467
The O star and planetary nebula
Period *Obligations*
08/01/87-01/31/89 FY88: TOTAL: \$12,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cohen, J. G. GSFC/Kondo, Y. 11-Astronomy
Gillett, F. C.

NAG 5-998 California Institute of Technology 1468
Detector and subcollimator requirements for a balloon based gamma ray imaging device
Period *Obligations*
09/01/87-12/31/88 FY88: \$28,228 TOTAL: \$28,228
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hurford, G. J. GSFC/Crannell, C. J. 11-Astronomy
Prince, T. A.

NAG 8-502 California Institute of Technology 1469
Post launch analysis of data from the High Energy Astrophysical Observatory heavy nuclei experiment (HEAO-C3)
Period *Obligations*
10/01/84-09/30/88 FY88: \$195,000 TOTAL: \$857,037
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, E. C. MSFC/Harper, B. 11-Astronomy

NAG 8-588 California Institute of Technology 1470
Fourier transform imaging technology for the NASA pinhole occulter facility
Period *Obligations*
08/01/86-12/31/87 FY88: TOTAL: \$9,979
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Prince, T. A. MSFC/Dabbs, J. R. 13-Physics

NAG 8-669 California Institute of Technology 1471
Fourier transform imaging technology for the NASA pin hole occulter
Period *Obligations*
07/22/87-09/31/88 FY88: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Prince, T. A. MSFC/Dabbs, J. 99-Multi-Discip

NAG 8-678 California Institute of Technology 1472
New aspects of heavy cosmic rays from calcium to nickel 20 to 28
Period *Obligations*
08/01/87-07/31/89 FY88: \$21,654 TOTAL: \$44,793
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mewaldt, R. A. MSFC/Harper, B. A. 11-Astronomy
Webber, W. R.

NAG 8-707 California Institute of Technology 1473
Vector magnetic fields in solar active regions
Period *Obligations*
03/14/88-03/13/89 FY88: \$16,000 TOTAL: \$16,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. MSFC/Hagyard, M. J. 11-Astronomy
MSFC/Moore, R. L.

NAG 9-43 California Institute of Technology 1474
Geochemical and isotopic investigation of lunar and planetary materials and interplanetary dust
Period *Obligations*
02/01/83-01/01/89 FY88: \$1,490,300 TOTAL: \$5,911,080
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wasserburg, G. J. JSC/Browne, I. D. 32-Geological Sci

NAG 9-46 California Institute of Technology 1475
Application of stable isotope measurement to the origin and history of lunar samples and meteorites
Period *Obligations*
02/01/83-02/01/89 FY88: \$92,784 TOTAL: \$496,265
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Epstein, S. JSC/Browne, I. D. 12-Chemistry

NAG 9-94 California Institute of Technology 1476
Solar system chemistry
Period *Obligations*
02/01/85-02/01/89 FY88: \$102,184 TOTAL: \$385,784
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burnett, D. S. JSC/Browne, I. D. 47-Materials Engr

NAG 9-105 California Institute of Technology 1477
Experimental studies of phase equilibria of meteorites planetary interiors
Period *Obligations*
01/01/85-02/01/89 FY88: \$83,579 TOTAL: \$330,684
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stolper, E. JSC/Browne, I. D. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 9-185 California Institute of Technology 1478
Lunar and meteoritic samples
Period *Obligations*
10/01/86-05/01/89 FY88: TOTAL: \$54,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Albee, A. L. JSC/Browne, I. D. 32-Geological Sci

NAG 9-236 California Institute of Technology 1479
Solubility of noble gases and nitrogen in silicate melts to 5000 bars
Period *Obligations*
06/01/87-12/01/88 FY88: TOTAL: \$33,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stopler, E. M. JSC/Browne, I. D. 32-Geological Sci

NAG 9-294 California Institute of Technology 1480
Early siliceous crust experimental petrology of trondhjemite
Period *Obligations*
05/01/88-05/01/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wyllie, P. JSC/Phinney, W. C. 32-Geological Sci

NAGW 58 California Institute of Technology 1481
Dynamics of planetary atmospheres
Period *Obligations*
05/01/80-06/30/89 FY88: \$95,000 TOTAL: \$879,464
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ingersoll, A. P. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 107 California Institute of Technology 1482
Development of InSb detectors for submillimeter astronomy
Period *Obligations*
11/01/80-10/31/88 FY88: \$81,000 TOTAL: \$698,977
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, T. G. HQ-EZ/Gillett, F. C. 11-Astronomy
HQ-EZ/Weiler, E. J.

NAGW 185 California Institute of Technology 1483
High pressure cosmochemistry applied to major planetary interiors
Period *Obligations*
04/01/81-11/30/88 FY88: \$80,000 TOTAL: \$525,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stevenson, D. J. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 254 California Institute of Technology 1484
Photochemical processes in the primitive atmosphere of the Earth
Period *Obligations*
10/15/81-12/31/87 FY88: TOTAL: \$175,246
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yung, Y. L. HQ-EB/Devincenzi, D. L. 12-Chemistry
HQ-EB/Averner, M.

NAGW 313 California Institute of Technology 1485
Spatial variation in Jovian photochemistry
Period *Obligations*
04/01/82-03/31/88 FY88: TOTAL: \$205,964
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yung, Y. L. HQ-EL/Brinton, H. C. 31-Atmos Sci
Allen, M. HQ-EL/Quaide, W. L.

NAGW 413 California Institute of Technology 1486
Photochemical modeling of trace species in the stratosphere and mesosphere
Period *Obligations*
01/01/83-10/31/88 FY88: \$100,302 TOTAL: \$716,639
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yung, Y. L. HQ-EE/Jackman, C. H. 31-Atmos Sci
Kruse, T. H. HQ-EE/Butler, D. M.

NAGW 832 California Institute of Technology 1487
Development of a narrow-band filter for the carbon IV 1550 line
Period *Obligations*
11/15/85-08/31/89 FY88: TOTAL: \$10,806
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. HQ-EZ/Gergely, T. E. 13-Physics

NAGW 941 California Institute of Technology 1488
Theoretical studies of active galactic nuclei
Period *Obligations*
07/01/86-09/30/87 FY88: TOTAL: \$15,021
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blandford, R. HQ-EZ/Jones, W. V. 11-Astronomy
HQ-EZ/Kaluzienski, L. J.

NAGW 1204 California Institute of Technology 1489
A dynamo excitation mechanism for the electroglow on Uranus
Period *Obligations*
10/01/87-09/30/89 FY88: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yung, Y. L. HQ-EL/Quaide, W. L. 11-Astronomy
HQ-EL/Brinton, H. C.

NAGW 1213 California Institute of Technology 1490
Interpretation and correlation of the uranian magnetic field
Period *Obligations*
09/15/87-09/14/88 FY88: TOTAL: \$37,545
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stevenson, D. J. HQ-EL/Quaide, W. L. 19-Phys Sci, NEC
HQ-EL/Slavin, J. A.

NAGW 1219 California Institute of Technology 1491
Meteorology of Uranus
Period *Obligations*
10/01/87-09/30/88 FY88: TOTAL: \$40,378
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ingersoll, A. P. HQ-EL/Underwood, J. 19-Phys Sci, NEC
HQ-EL/Fox, K.

NAGW 1226 California Institute of Technology 1492
Mars geologic mapping in the south polar region
Period *Obligations*
10/01/87-03/31/89 FY88: TOTAL: \$9,952
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murray, B. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1301 California Institute of Technology 1493
Theoretical studies of active galactic nuclei
Period *Obligations*
06/01/88-05/30/89 FY88: \$204,726 TOTAL: \$204,726
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blandford, R. D. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Jones, W. V.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 1303 California Institute of Technology 1494
Investigation of stellar oscillations
Period *Obligations*
02/01/88-01/31/89 FY88: \$110,000 TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldreich, P. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-ES/Jones, W. V.

NAGW 1427 California Institute of Technology 1495
Solubility of noble gases and nitrogen in silicate melts to 5000 bars
Period *Obligations*
06/01/88-05/31/89 FY88: \$33,000 TOTAL: \$33,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stolper, E. M. HQ-EL/Boyce, J. M. 19-Phys Sci, NEC

NAGW 1432 California Institute of Technology 1496
Millimeter spectrometer and radiometer Cassini MSAR instrument development
Period *Obligations*
07/01/88-06/30/89 FY88: \$100,100 TOTAL: \$100,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muhleman, D. O. HQ-EL/Mahaffy, P. R. 32-Geological Sci

NAGW 1435 California Institute of Technology 1497
The isotopic composition of hydrogen, carbon, nitrogen and oxygen in organic matter in meteorites - their possible implications to the origin of life on Earth
Period *Obligations*
07/01/88-06/30/89 FY88: \$50,078 TOTAL: \$50,078
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Epstein, S. HQ-EB/Rummel, J. D. 12-Chemistry
HQ-EL/Boyce, J.

NAGW 1445 California Institute of Technology 1498
Convection in Venus observations models and comparison with Earth
Period *Obligations*
06/01/88-12/31/89 FY88: \$24,125 TOTAL: \$24,125
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hager, B. HQ-EL/Underwood, J. R. 32-Geological Sci

NAGW 1448 California Institute of Technology 1499
Lunar and planetary studies
Period *Obligations*
12/01/88-11/30/89 FY88: \$150,000 TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muhleman, D. O. HQ-EL/Rahe, J. H. 11-Astronomy

NAS 5-25451 California Institute of Technology 1500
Wide field/planetary camera for space telescope
Period *Obligations*
01/01/79-12/31/88 FY88: \$1,639,541 TOTAL: \$13,320,586
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Westphal, J. GSFC/Stich, K. 11-Astronomy

NAS 5-27226 California Institute of Technology 1501
Introplate deformation, stress in the lithosphere and the driving mechanism for plate motions
Period *Obligations*
06/29/82-01/31/87 FY88: TOTAL: \$202,123
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hager, B. H. GSFC/Mead, G. D. 32-Geological Sci

NAS 5-27269 California Institute of Technology 1502
Definition phase of the science program for a photometric filtergraph for the solar optical telescope (SOT)
Period *Obligations*
05/26/82-10/31/88 FY88: \$99,500 TOTAL: \$1,178,637
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. GSFC/Barrowman, J. S. 31-Atmos Sci

NAS 5-30340 California Institute of Technology 1503
Phase a study of an advanced composition Explorer mission
Period *Obligations*
06/09/88-07/02/89 FY88: \$200,000 TOTAL: \$200,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, E. C. GSFC/Mercanti, E. 11-Astronomy

NAS 8-33108 California Institute of Technology 1504
Research in turbomachine rotor forces
Period *Obligations*
10/23/78-06/30/88 FY88: TOTAL: \$983,042
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Acosta, A. J. MSFC/Stinson, H. P. 46-Mech Engr
Brennen, C. MSFC/Aderhold, H.
Caughy, T. K.

NASW 3983 California Institute of Technology 1505
Millimeter spect/radiometer instrument development
Period *Obligations*
11/15/84-12/31/88 FY88: TOTAL: \$820,272
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muhleman, D. O. HQ-EL/Vescelus, F. 19-Phys Sci, NEC
HQ-EL/Quaide, W. L.

NCA 2-90401 California Institute of Technology 1506
Use of adiabatic demagnetization-cooled detectors for mm-wavelength astronomy
Period *Obligations*
09/01/84-08/31/87 FY88: TOTAL: \$7,908
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Neugebauer, G. ARC/Werner, M. W. 11-Astronomy
Soifer, B. T. ARC/Roellig, T. P.

NCC 2-309 California Institute of Technology 1507
Examination of the effects of vortex breakdown on high angle of attack aerodynamics
Period *Obligations*
07/01/84-07/31/88 FY88: TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Culick, F. E. ARC/Schiff, L. B. 41-Aero Engr

NCC 2-319 California Institute of Technology 1508
Cross sections for inelastic-molecule collisions
Period *Obligations*
09/01/84-08/31/88 FY88: TOTAL: \$11,599
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McKoy, V. ARC/Cooper, D. M. 13-Physics
ARC/Stallcop, J. R.

NCC 2-429 California Institute of Technology 1509
Application of bifurcation theory to the dynamics of flight at high angles of attack
Period *Obligations*
09/01/86-11/30/88 FY88: \$45,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Culick, F. ARC/Gera, J. 41-Aero Engr
Jahnke, C. ARC/Enevaldsen, E. K.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-477 California Institute of Technology 1510
Modeling analysis and identification of uncertain systems
Period *Obligations*
05/01/87-04/30/89 FY88: \$99,827 TOTAL: \$191,184
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doyle, J. C. ARC/Brenner, M. J. 41-Aero Engr
Sideris, A. ARC/Burken, J. J.

NGL 05-002-003 California Institute of Technology 1511
Basic scientific research on lunar and planetary exploration
Period *Obligations*
12/01/59-11/30/88 FY88: \$155,057 TOTAL: \$4,666,177
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muhleman, D. O. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NGL 05-002-034 California Institute of Technology 1512
Research in solar flares and the solar atmosphere
Period *Obligations*
05/18/65-10/31/88 FY88: \$212,000 TOTAL: \$4,896,066
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. HQ-EZ/Spicer, D. S. 11-Astronomy

NGL 05-002-105 California Institute of Technology 1513
Shock effects in minerals
Period *Obligations*
08/16/68-12/31/88 FY88: \$208,000 TOTAL: \$2,670,593
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahrens, T. J. HQ-EL/Underwood, J. 32-Geological Sci
Rust, W. D. HQ-EL/Boyce, J. M.
Sasaki, Y.

NGL 05-002-134 California Institute of Technology 1514
Modern astronomical instrument development
Period *Obligations*
10/27/69-09/30/87 FY88: TOTAL: \$1,118,611
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oke, J. B. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Bogges, N. W.

NGL 05-002-140 California Institute of Technology 1515
Research in planetary astronomy
Period *Obligations*
04/11/69-12/31/88 FY88: \$29,993 TOTAL: \$952,303
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Soifer, B. T. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NGR 05-002-114 California Institute of Technology 1516
Radio interferometry of Mars and Venus
Period *Obligations*
10/11/68-09/30/88 FY88: \$35,325 TOTAL: \$805,129
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muhleman, D. O. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NGR 05-002-160 California Institute of Technology 1517
Research in particles and fields
Period *Obligations*
10/27/69-09/30/88 FY88: \$928,009 TOTAL: \$8,926,864
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, E. C. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-EZ/Kaluzienski, L. J.

NGT 00-050-092 California Institute of Technology 1518
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 FY88: \$18,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Prince, T. A. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-093 California Institute of Technology 1519
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 FY88: \$18,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doyle, J. C. HQ-LE/Owens, F. C. 41-Aero Engr

NGT 00-050-096 California Institute of Technology 1520
NASA graduate student researchers program
Period *Obligations*
06/01/86-06/30/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murray, B. HQ-LE/Owens, F. C. 32-Geological Sci

NGT 00-050-170 California Institute of Technology 1521
NASA graduate student researchers program
Period *Obligations*
07/01/87-06/30/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McKoy, V. HQ-XE/Owens, F. C. 12-Chemistry

NGT 00-050-187 California Institute of Technology 1522
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Libbrecht, K. G. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-227 California Institute of Technology 1523
NASA graduate student researchers program
Period *Obligations*
07/01/87-06/30/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yung, Y. HQ-XE/Owens, F. C. 99-Multi-Discip

NGT 05-002-802 California Institute of Technology 1524
NASA graduate student researchers program
Period *Obligations*
06/01/85-05/31/88 FY88: TOTAL: \$50,170
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lewis, J. S. HQ-LE/Owens, F. C. 13-Physics

NGT 05-003-790 California Institute of Technology 1525
Summer research program faculty fellowships
Period *Obligations*
01/01/79-03/31/89 FY88: \$298,959 TOTAL: \$2,414,650
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Albee, A. L. HQ-XE/McGee, A. S. 49-Engr, NEC
HQ-XE/Schwartz, E. T.

NSG 1483 California Institute of Technology 1526
Low speed impact damage on composite materials
Period *Obligations*
01/15/78-04/14/89 FY88: \$64,991 TOTAL: \$579,197
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knauss, W. G. LARC/Starnes, J. H. 41-Aero Engr
Babcock, C. D.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 7129 California Institute of Technology 1527
Relationship of impact cratering to the evolution of the lunar surface
Period *Obligations*
04/01/75-12/31/88 FY88: \$80,000 TOTAL: \$926,221
Prin. Invest. NASA Tech. Officer CASE Category
Ahrens, T. J. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NSG 7376 California Institute of Technology 1528
Photochemistry of the Jovian planets and their satellites
Period *Obligations*
11/01/77-02/28/89 FY88: \$94,877 TOTAL: \$620,049
Prin. Invest. NASA Tech. Officer CASE Category
Yung, Y. L. HQ-EL/Fix, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NSG 7610 California Institute of Technology 1529
Fundamental studies in geodynamics
Period *Obligations*
08/01/79-01/31/87 FY88: TOTAL: \$685,000
Prin. Invest. NASA Tech. Officer CASE Category
Anderson, D. L. HQ-EL/Tuyahov, A. J. 32-Geological Sci
Hager, B. H.
Kanamori, H.

NAG 2-49 California Polytechnic State U - Pomona 1530
Development of a small-scale V/STOL propulsion simulator for modelling ground effect fields
Period *Obligations*
08/01/80-03/31/88 FY88: TOTAL: \$126,183
Prin. Invest. NASA Tech. Officer CASE Category
Lord, P. A. ARC/Corsiglia, V. 41-Aero Engr
ARC/Dudley, M. R.

NAGW 715 California Polytechnic State U - Pomona 1531
Periglacial and glacial analogs for Martian landforms
Period *Obligations*
01/01/85-10/31/88 FY88: TOTAL: \$33,324
Prin. Invest. NASA Tech. Officer CASE Category
Rossbacher, L. A. HQ-EL/Scott, D. H. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAG 2-375 California Polytechnic State U-San Luis 1532
Economical graphics display system for flight simulation avionics
Period *Obligations*
10/01/85-10/31/88 FY88: \$33,291 TOTAL: \$90,040
Prin. Invest. NASA Tech. Officer CASE Category
Fitzpatrick, M. ARC/Cameron, W. D. 41-Aero Engr
ARC/Cook, A. M.

NAS 2-10364 California Polytechnic State U-San Luis 1533
Software development and application for dynamic analysis of the tilt rotor research aircraft
Period *Obligations*
09/04/79-09/01/89 FY88: TOTAL: \$392,827
Prin. Invest. NASA Tech. Officer CASE Category
Grimes, J. E. ARC/Magee, J. P. 41-Aero Engr

NCA 2-212 California Polytechnic State U-San Luis 1534
Metric conservation for time dependent grids using a finite difference approach
Period *Obligations*
06/22/87-06/21/88 FY88: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Cummings, R. ARC/Chaderjian, N. M. 41-Aero Engr

NCC 2-226 California Polytechnic State U-San Luis 1535
Validation of an existing panelling method
Period *Obligations*
10/01/82-09/30/88 FY88: TOTAL: \$100,606
Prin. Invest. NASA Tech. Officer CASE Category
Hoffman, J. A. ARC/Corsiglia, V. R. 41-Aero Engr

NCC 2-236 California Polytechnic State U-San Luis 1536
Use of the ACSYNT program for the preliminary investigation of selected aircraft
Period *Obligations*
01/01/83-06/30/89 FY88: TOTAL: \$133,234
Prin. Invest. NASA Tech. Officer CASE Category
Hoffmann, J. A. ARC/Gelhausen, P. A. 41-Aero Engr

NCC 2-433 California Polytechnic State U-San Luis 1537
Thermal analysis of an isolated bay of a hypersonic wing test structure
Period *Obligations*
09/01/86-09/30/88 FY88: \$8,158 TOTAL: \$36,153
Prin. Invest. NASA Tech. Officer CASE Category
Hoffmann, J. ARC/Gong, L. 41-Aero Engr
Swanson, N. J.

NCC 2-450 California Polytechnic State U-San Luis 1538
Effects of the structure of free stream turbulence on turbulent boundary layer parameters
Period *Obligations*
01/01/87-01/31/89 FY88: TOTAL: \$26,613
Prin. Invest. NASA Tech. Officer CASE Category
Hoffmann, J. ARC/Dudley, M. R. 41-Aero Engr
ARC/Corsiglia, V. R.

NCC 2-467 California Polytechnic State U-San Luis 1539
Maneuver effects related to performance of aircraft
Period *Obligations*
04/01/87-05/31/89 FY88: TOTAL: \$23,022
Prin. Invest. NASA Tech. Officer CASE Category
Carpenter, T. W. ARC/Ray, R. J. 41-Aero Engr
ARC/Hicks, J. W.

NCC 2-468 California Polytechnic State U-San Luis 1540
An analysis of flight test performance data and a comparison with digital performance simulation results
Period *Obligations*
04/01/87-05/31/89 FY88: TOTAL: \$22,133
Prin. Invest. NASA Tech. Officer CASE Category
Carpenter, T. W. ARC/Ray, R. J. 41-Aero Engr
ARC/Hicks, J. W.

NCC 2-484 California Polytechnic State U-San Luis 1541
Development of a system for basic fluid mechanics measurements
Period *Obligations*
07/01/87-12/31/88 FY88: \$16,714 TOTAL: \$36,714
Prin. Invest. NASA Tech. Officer CASE Category
Hoffmann, J. A. ARC/Olson, L. E. 41-Aero Engr
ARC/Horne, W. C.

NCC 2-533 California Polytechnic State U-San Luis 1542
An improved digital performance simulation program for analysis of flight test performance
Period *Obligations*
04/01/88-10/31/88 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Carpenter, T. W. ARC/Ray, R. J. 41-Aero Engr
ARC/Hicks, J. W.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-536 California Polytechnic State U-San Luis 1543
Computation of three dimensional effects on two dimensional wings
Period *Obligations*
06/01/88-12/31/88 FY88: \$14,000 TOTAL: \$14,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cummings, R. M. ARC/Ross, J. C. 41-Aero Engr

NCA 2-242 California State University - Fresno 1544
An evaluation of the potential for technology transfer to emerging business sectors in the San Joaquin valley
Period *Obligations*
07/01/87-08/31/88 FY88: \$18,000 TOTAL: \$24,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Beringson, D. ARC/Dacanay, M. 99-Multi-Discip
Buhr, E. C.

NAG 9-57 California State University - Fullerton 1545
Meteoritic trace element microdistributions
Period *Obligations*
03/01/83-10/01/88 FY88: TOTAL: \$250,010
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Woolum, D. S. JSC/Browne, I. D. 13-Physics

NSG 7614 California State University - Fullerton 1546
Atmospheric dynamics from Viking Lander data
Period *Obligations*
08/01/79-04/30/89 FY88: TOTAL: \$106,739
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ryan, J. A. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NCC 2-318 California State Univ.- hayward 1547
Perception and performance in altered gravitational inertial field
Period *Obligations*
07/01/84-02/29/88 FY88: TOTAL: \$149,968
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stoper, A. E. ARC/Cohen, M. M. 69-Psych, NEC

NCC 2-529 California State Univ.- hayward 1548
Analysis of the visual framework effect
Period *Obligations*
02/01/88-01/31/89 FY88: \$49,812 TOTAL: \$49,812
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stoper, A. E. ARC/Cohen, M. M. 69-Psych, NEC

NAG 2-287 California State University - Long Beach 1549
Numerical and physical aspects of aerodynamic flows
Period *Obligations*
03/01/84-01/15/89 FY88: TOTAL: \$9,980
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cabeci, T. ARC/Peterson, V. L. 41-Aero Engr

NAG 2-510 California State University - Long Beach 1550
The effects of fuel motion on flight vehicle dynamics
Period *Obligations*
01/01/88-06/30/88 FY88: \$21,817 TOTAL: \$21,817
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yeh, H. Y. ARC/Matheny, N. W. 46-Mech Engr
Yeh, H. G.
Toby, B.

NAG 3-20 California State University - Long Beach 1551
Gear lubrication and cooling study
Period *Obligations*
01/01/80-06/08/89 FY88: TOTAL: \$362,232
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Akin, L. LERC/Townsend, D. P. 46-Mech Engr
El-bayoumy, L.

NAG 3-601 California State University - Long Beach 1552
Iced airfoil flowfield analysis
Period *Obligations*
01/05/85-01/01/89 FY88: \$59,186 TOTAL: \$208,694
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cebeci, T. LERC/Bidwell, C. 41-Aero Engr

NAG 3-935 California State University - Long Beach 1553
Ice accretion prediction code
Period *Obligations*
10/01/88-09/30/89 FY88: \$39,417 TOTAL: \$39,417
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cebeci, T. LERC/Bidwell, C. S. 41-Aero Engr

NAG 2-394 California State University - Los Angeles 1554
Performance prediction of the VEO VTOL exhaust nozzle
Period *Obligations*
06/15/86-10/14/87 FY88: TOTAL: \$22,108
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, C. C. ARC/Dudley, M. R. 41-Aero Engr
ARC/Corsiglia, V. R.

NAG 2-499 California State University - Northridge 1555
Embryonic development in space a model system mechanisms of cellular adhesion
Period *Obligations*
10/01/87-09/30/88 FY88: \$4,350 TOTAL: \$4,350
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oppenheimer, S. B. ARC/Ross, M. D. 51-Biological Sci
ARC/Holton, E.

NAGW 659 California State University - Northridge 1556
Space station human productivity
Period *Obligations*
10/01/84-09/30/87 FY88: TOTAL: \$450,011
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bluth, B. J. HQ-S/Cramer, D. B. 49-Engr, NEC
HQ-S/Herman, D. H.

NAGW 688 California State University - Northridge 1557
Operation of a rotating full disk photometer in support of the SMM
Period *Obligations*
12/01/84-11/30/88 FY88: \$27,000 TOTAL: \$107,104
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chapman, G. A. HQ-EZ/Ahluwalia, H. S. 13-Physics

NCC 2-515 California State University - Northridge 1558
Efficient grid generation and its application
Period *Obligations*
08/01/87-09/30/88 FY88: \$13,000 TOTAL: \$13,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seki, R. ARC/Steger, J. L. 29-Math/Computer, NEC
ARC/Holst, T. L.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGT 00-070-075 California State University - Northridge 1559
Graduate student researchers underrepresented minority focus program
Period *Obligations*
08/01/87-07/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Seki, R. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-275 Humboldt State University 1567
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Burke, R. M. HQ-EE/Baltuck, M. 32-Geological Sci
Herrick, J. F. HQ-EE/Ruzek, M.

NGT 00-070-085 California State University - Northridge 1560
Graduate student researchers underrepresented minority focus program
Period *Obligations*
05/16/88-05/15/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Oppenheimer, S. B. HQ-XE/Owens, F. C. 51-Biological Sci

NAG 9-273 Northrop University 1568
Research and experimental determination of thermal conductivity
Period *Obligations*
04/01/88-01/01/89 FY88: \$17,640 TOTAL: \$17,640
Prin. Invest. NASA Tech. Officer CASE Category
Maddox, A. JSC/Van Tassel, K. 12-Chemistry

NCC 2-310 California State University - Sacramento 1561
Teams in space: In depth study of teams, team building and team performance
Period *Obligations*
07/01/84-06/30/88 FY88: TOTAL: \$136,365
Prin. Invest. NASA Tech. Officer CASE Category
Sparks, P. M. ARC/Foushee, H. C. 79-Soc Sci, NEC
Liberty, L.

NAG 5-1011 Pitzer College 1569
Properties of gamma ray bursts detected by the gamma ray spectrometer
Period *Obligations*
10/01/87-09/30/88 FY88: TOTAL: \$29,900
Prin. Invest. NASA Tech. Officer CASE Category
Higdon, J. C. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Gurman, J. B.

NCC 2-342 Foothill-De Anza Com College System Off 1562
Optimization of knowledge based systems and expert system development tools
Period *Obligations*
01/01/85-12/31/88 FY88: \$209,489 TOTAL: \$770,897
Prin. Invest. NASA Tech. Officer CASE Category
Frederick, V. ARC/Lum, H. 22-Computer Science
LERC/McKellar, D.

NAGW 1297 Pitzer College 1570
A systematic investigation of turbulent density magnetic field and velocity fluctuations in the interplanetary medium
Period *Obligations*
05/01/88-04/30/89 FY88: \$20,250 TOTAL: \$20,250
Prin. Invest. NASA Tech. Officer CASE Category
Higdon, J. C. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Jones, W. V.

NCA 2-292 Harvey Mudd College 1563
In flight aeroelastic stability parameter estimation
Period *Obligations*
02/01/88-06/30/88 FY88: \$28,000 TOTAL: \$28,000
Prin. Invest. NASA Tech. Officer CASE Category
Krieger, H. ARC/Kehoe, M. W. 21-Mathematics
Borrelli, R. L.

NAG 5-911 San Diego State University 1571
Measurement of evapotranspiration with combined reflective and thermal infrared radiance observations
Period *Obligations*
06/15/87-01/14/89 FY88: \$72,948 TOTAL: \$118,170
Prin. Invest. NASA Tech. Officer CASE Category
Hope, A. S. GSFC/Choudhury, B. 39-Env Sci, NEC
GSFC/Hall, F.

NCC 2-411 Harvey Mudd College 1564
Evaluation of structural dynamics analysis tools and a correlation of results
Period *Obligations*
06/01/86-06/30/88 FY88: \$17,232 TOTAL: \$237,492
Prin. Invest. NASA Tech. Officer CASE Category
Taenbaum, B. S. ARC/Petersen, K. L. 41-Aero Engr
ARC/Voelker, L.

NAGW 230 San Diego State University 1572
Mechanism of geotopic curvature in plant shoots
Period *Obligations*
07/01/81-10/31/88 FY88: TOTAL: \$264,383
Prin. Invest. NASA Tech. Officer CASE Category
Rayle, D. HQ-EB/Halstead, T. W. 51-Biological Sci

NCC 2-425 Harvey Mudd College 1565
Structural response analysis of flexible aircraft in flight to point excitation
Period *Obligations*
06/01/86-03/31/87 FY88: \$75,000 TOTAL: \$134,645
Prin. Invest. NASA Tech. Officer CASE Category
Taenbaum, B. S. ARC/Voelker, L. 41-Aero Engr
ARC/Petersen, K.

NAGW 319 San Diego State University 1573
Photoabsorption and photodissociation of molecules important in the interstellar medium
Period *Obligations*
05/15/82-01/14/89 FY88: \$54,000 TOTAL: \$432,694
Prin. Invest. NASA Tech. Officer CASE Category
Lee, L. HQ-EZ/Gillett, F. C. 11-Astronomy
HQ-EZ/Weiler, E. J.

NCA 2-237 Humboldt State University 1566
Research on telecommunications circuit planning tools
Period *Obligations*
07/10/87-07/09/89 FY88: \$20,002 TOTAL: \$40,002
Prin. Invest. NASA Tech. Officer CASE Category
Blaisdell, J. H. ARC/Jones, W. P. 22-Computer Science

NAGW 661 San Diego State University 1574
Measurements of HO2 chemical kinetics with a new detection method
Period *Obligations*
12/01/84-11/30/87 FY88: TOTAL: \$258,090
Prin. Invest. NASA Tech. Officer CASE Category
Lee, L. C. HQ-EE/Hampson, R. F. 31-Atmos Sci
Suto, M. HQ-EE/Margitan, J. J.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS13-373 San Diego State University 1575
Efficient updates of vector coded geographic information systems using remotely sensed data
Period *Obligations*
09/30/88-09/30/89 FY88: \$205,781 TOTAL: \$205,781
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stow, D. A. NSTL/Hill, C. L. 39-Env Sci, NEC

NCA 2-267 San Francisco State University 1583
Joint use of resources for operation of the NASA Ames university consortium office
Period *Obligations*
11/01/87-10/31/88 FY88: \$112,000 TOTAL: \$112,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greenaway, L. B. ARC/Milov, L. A. 99-Multi-Discip
Steger, E. C.

NCC 2-458 San Diego State University 1576
Application of panel methods to V STOL and slender body aerodynamics
Period *Obligations*
10/01/86-12/31/88 FY88: \$74,799 TOTAL: \$137,288
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Katz, J. ARC/Olson, L. E. 41-Aero Engr
ARC/Corsiglia, V. R.

NCC 2-352 San Francisco State University 1584
The spectroscopic chemical and photophysical properties of Martian soils and their analogs
Period *Obligations*
04/01/85-09/30/88 FY88: \$92,500 TOTAL: \$303,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Banin, A. ARC/Carle, G. C. 59-Life Sci, NEC
Orenberg, J.

NGT 00-050-177 San Diego State University 1577
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/88 FY88: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rayle, D. L. HQ-XE/Owens, F. C. 51-Biological Sci

NAG 2-363 San Jose State University 1585
AOTV shock tunnel simulations
Period *Obligations*
10/01/85-02/28/89 FY88: \$48,447 TOTAL: \$141,101
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Desautel, D. ARC/Lasher, L. E. 41-Aero Engr

NAGW 324 San Francisco State University 1578
Soluble minerals as prebiotic surfaces for absorption and condensation of biomolecules
Period *Obligations*
05/01/82-03/31/87 FY88: TOTAL: \$322,386
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Orenberg, J. B. HQ-EB/Devincenzi, D. L. 12-Chemistry
Lahav, N. HQ-EB/Averner, M.

NAG 2-410 San Jose State University 1586
Proteolysis in muscle atrophy
Period *Obligations*
04/15/86-12/14/88 FY88: \$37,425 TOTAL: \$142,473
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yengoyan, L. S. ARC/Grindeland, R. E. 51-Biological Sci

NCA 2-97 San Francisco State University 1579
Clouds and aerosols effects on climate and the radiative balance
Period *Obligations*
02/01/86-01/31/88 FY88: TOTAL: \$66,241
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lea, S. M. ARC/Valero, F. P. 11-Astronomy

NAG 2-457 San Jose State University 1587
Aerodynamic maneuvering hypersonic flight mechanics
Period *Obligations*
06/01/87-09/30/88 FY88: TOTAL: \$13,745
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Desautel, D. ARC/Tauber, M. E. 41-Aero Engr

NCA 2-175 San Francisco State University 1580
Operation of the NASA Ames university consortium joint enterprise offices
Period *Obligations*
11/01/86-03/31/88 FY88: TOTAL: \$190,113
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heidtmann, R. W. ARC/Milov, L. A. 99-Multi-Discip
Giles, E. C.
Inadomi, E.

NAG 9-232 San Jose State University 1588
Cosmogenic nuclide production in meteorites
Period *Obligations*
08/01/87-08/01/89 FY88: \$40,969 TOTAL: \$80,969
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Englert, P. A. JSC/Browne, I. D. 32-Geological Sci

NCA 2-188 San Francisco State University 1581
Work engagement plan for combining and dedicating certain resources of the CO adventurers for displaying at the technology market center in Santa Clara County information concerning
Period *Obligations*
12/23/86-09/30/88 FY88: \$271,500 TOTAL: \$271,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cunningham, A. F. ARC/Milov, L. A. 99-Multi-Discip

NAGW 1052 San Jose State University 1589
Geology of the Martian uplands
Period *Obligations*
04/01/87-12/31/88 FY88: TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harden, D. HQ-EL/Scott, D. H. 32-Geological Sci
HQ-EL/Boyce, J. M.

NCA 2-261 San Francisco State University 1582
Radiative transfer studies in planetary atmospheres
Period *Obligations*
10/01/87-09/30/89 FY88: \$65,208 TOTAL: \$65,208
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marcy, G. W. ARC/Valero, F. P. 11-Astronomy

NCA 2-59 San Jose State University 1590
Research problems in space and planetary biology biotechnology life support and the origin of life
Period *Obligations*
06/15/85-08/31/87 FY88: TOTAL: \$42,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holley, D. C. ARC/Jahnke, L. L. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-117 San Jose State University 1591
San Jose State University NASA Ames Research Center research and development program
Period *Obligations*
05/01/86-04/30/88 FY88: \$109,594 TOTAL: \$974,099
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freeman, J. ARC/Pike, R. L. 99-Multi-Discip
ARC/Cunningham, D.

NCC 2-153 San Jose State University 1599
Energetic contributions of the mineral phase to chemistry on planetary surfaces
Period *Obligations*
07/01/81-10/31/88 FY88: \$75,494 TOTAL: \$520,442
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ling, A. C. ARC/Chang, S. 12-Chemistry
Coyne, L. M. ARC/Lawless, J.

NCA 2-145 San Jose State University 1592
Canopy biochemistry in Douglas fir forest
Period *Obligations*
09/01/86-08/31/88 FY88: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Savage, W. ARC/Matson, P. 54-Env Biology

NCC 2-167 San Jose State University 1600
Functional significance of sensory interactions in the vestibular system in relation to self motion perception and motion sickness
Period *Obligations*
01/01/82-12/31/88 FY88: \$65,813 TOTAL: \$404,243
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fox, R. A. ARC/Dauntton, N. G. 51-Biological Sci
ARC/Corcoran, M. L.

NCA 2-176 San Jose State University 1593
A comparative study of two different boundary layer parameterizations for a Mars general circulation model
Period *Obligations*
11/01/86-05/31/87 FY88: TOTAL: \$4,943
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bridger, A. ARC/Haberle, R. M. 11-Astronomy
ARC/Pollack, J. B.

NCC 2-168 San Jose State University 1601
Experimental studies of the distribution of minor constituents
Period *Obligations*
01/01/82-10/31/88 FY88: \$40,000 TOTAL: \$531,811
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodman, J. ARC/Vedder, J. F. 31-Atmos Sci

NCA 2-203 San Jose State University 1594
Characterization and validation of the photo environment within the animal rat housing modules to be used in microgravity
Period *Obligations*
04/01/87-03/31/89 FY88: \$10,001 TOTAL: \$25,174
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holley, D. C. ARC/Winget, C. M. 51-Biological Sci
ARC/Leon, H.

NCC 2-195 San Jose State University 1602
Development of analytical techniques for the analysis of fiber materials
Period *Obligations*
08/01/82-05/31/89 FY88: \$66,458 TOTAL: \$335,774
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, R. N. ARC/Riccitiello, S. R. 47-Materials Engr
ARC/Leiser, D.

NCA 2-218 San Jose State University 1595
Development of an IR laser gas analysis technique for use in planetary isotopic ratio measurements
Period *Obligations*
06/01/87-05/31/89 FY88: \$38,000 TOTAL: \$46,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becker, J. F. ARC/McKay, C. P. 13-Physics

NCC 2-211 San Jose State University 1603
Tropospheric stratospheric measurement studies
Period *Obligations*
09/22/82-10/31/88 FY88: \$68,328 TOTAL: \$381,387
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodman, J. ARC/Chan, K. R. 31-Atmos Sci
Bowen, S. W. ARC/Scott, S. G.

NCA 2-220 San Jose State University 1596
A modeling study of the climate effects of arctic haze
Period *Obligations*
06/01/87-04/30/89 FY88: \$7,326 TOTAL: \$12,326
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bornstein, R. ARC/Haberle, R. 31-Atmos Sci
ARC/Ackerman, T.

NCC 2-267 San Jose State University 1604
Development of digital flight control laws and a flight control computer system for RSRA rotor performance research
Period *Obligations*
08/22/83-09/30/88 FY88: \$74,583 TOTAL: \$710,380
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, J. C. ARC/Talbot, P. D. 41-Aero Engr
ARC/Snyder, W.

NCA 2-295 San Jose State University 1597
San Jose State University NASA Ames Research Center research and development program
Period *Obligations*
04/15/88-04/30/90 FY88: \$747,209 TOTAL: \$747,209
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freeman, J. ARC/Pike, R. L. 99-Multi-Discip
ARC/Cunningham, D.

NCC 2-315 San Jose State University 1605
An investigation of clear air turbulence (CAT) incidents involving wide-bodied aircraft
Period *Obligations*
06/15/84-10/14/88 FY88: \$29,834 TOTAL: \$104,025
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lester, P. F. ARC/Wingrove, R. C. 31-Atmos Sci
ARC/Bach, R. E.

NCC 2-3 San Jose State University 1598
A study of fiber materials for use in temperature resistant fiber reinforced composites
Period *Obligations*
05/31/79-05/31/89 FY88: \$57,312 TOTAL: \$497,655
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, R. N. ARC/Riccitiello, S. R. 47-Materials Engr
ARC/Goldstein, H.

NCC 2-327 San Jose State University 1606
Aero-space human factors
Period *Obligations*
10/01/84-10/31/88 FY88: \$536,337 TOTAL: \$1,548,732
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jordan, K. ARC/Shafto, M. G. 69-Psych, NEC
Jordan, K. ARC/Chambers, A. B.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-345	San Jose State University	1607	The spectroscopic, chemical and photophysical properties of Martian soils and their analogs
<i>Period</i>	<i>Obligations</i>		
03/01/85-10/31/88	FY88: \$75,000	TOTAL: \$199,871	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ling, A. C.	ARC/Carle, G. C.	59-Life Sci, NEC	
Coyne, L. M.			
NCC 2-516	San Jose State University	1615	Computational studies of molecular collision processes important to design operation of the aerassisted orbital transfer vehicle
<i>Period</i>	<i>Obligations</i>		
06/01/88-07/31/89	FY88: \$82,096	TOTAL: \$82,096	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ling, A. C.	ARC/Jaffe, R. L.	12-Chemistry	
NCC 2-412	San Jose State University	1608	Ballistic range and shock tunnel test engineering
<i>Period</i>	<i>Obligations</i>		
05/01/86-01/31/89	FY88: \$35,364	TOTAL: \$88,497	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Desautel, D.	ARC/Lasher, L. E.	41-Aero Engr	
NCC 2-430	San Jose State University	1609	Flow field graphics
<i>Period</i>	<i>Obligations</i>		
07/15/86-10/31/88	FY88: \$126,482	TOTAL: \$231,844	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Borja, A. A.	ARC/Deiwert, G. S.	41-Aero Engr	
Desautel, D.	ARC/Feierisen, W. J.		
NCC 2-432	San Jose State University	1610	Rotor performance research
<i>Period</i>	<i>Obligations</i>		
07/01/86-10/14/87	FY88:	TOTAL: \$59,683	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Wang, J. C.	ARC/Miura, H.	41-Aero Engr	
NCC 2-442	San Jose State University	1611	Survival of carbonaceous grains in a simulated solar nebula
<i>Period</i>	<i>Obligations</i>		
11/01/86-09/30/87	FY88:	TOTAL: \$17,121	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Spitze, L. R.	ARC/Wydeven, T. J.	12-Chemistry	
Wood, P. C.			
NCC 2-449	San Jose State University	1612	Neural connectivity and immunocytochemical studies of anatomical sites related to nauseogenic and emetic reflexes
<i>Period</i>	<i>Obligations</i>		
12/01/86-11/30/88	FY88: \$117,786	TOTAL: \$266,230	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Fox, R. A.	ARC/Corcoran, M. L.	51-Biological Sci	
D'amillo, F.	ARC/Mehler, W. R.		
NCC 2-466	San Jose State University	1613	Planetary atmospheres associated with experiments on the Galileo Jupiter probe experiments on the Venus balloons and infrared observations of Venus
<i>Period</i>	<i>Obligations</i>		
03/01/87-10/31/88	FY88: \$83,126	TOTAL: \$128,301	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Goodman, J.	ARC/Brockner, D. H.	19-Phys Sci, NEC	
	ARC/Sperans, J.		
NCC 2-471	San Jose State University	1614	The atmosphere of Venus, and work on the atmospheric structure
<i>Period</i>	<i>Obligations</i>		
04/01/87-01/31/89	FY88: \$68,227	TOTAL: \$151,957	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lester, P.	ARC/Brockner, D. H.	31-Atmos Sci	
Seiff, A.			
NCC 2-527	San Jose State University	1616	Planetary atmospheres associated with the Pioneer Venus orbiter and the Galileo probe to Jupiter
<i>Period</i>	<i>Obligations</i>		
01/15/88-01/14/89	FY88: \$63,701	TOTAL: \$63,701	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Colin, L.	ARC/Dyer, J. W.	19-Phys Sci, NEC	
Lester, P. F.	ARC/Fimmel, R. O.		
NGT 00-070-068	San Jose State University	1617	Graduate student researchers underrepresented minority focus program
<i>Period</i>	<i>Obligations</i>		
01/01/88-12/31/88	FY88: \$18,000	TOTAL: \$18,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Yengoyan, L. S.	HQ-XE/Owens, F. C.	12-Chemistry	
NAG 8-649	Sonoma State University	1618	Multi mission studies of massive X ray binaries
<i>Period</i>	<i>Obligations</i>		
06/24/87-06/24/89	FY88: \$26,988	TOTAL: \$52,983	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Cominsky, L. R.	MSFC/Harper, B.	11-Astronomy	
NGT 00-070-069	Sonoma State University	1619	Graduate student researchers underrepresented minority focus program
<i>Period</i>	<i>Obligations</i>		
01/01/88-12/31/88	FY88: \$15,447	TOTAL: \$15,447	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Becker, J. F.	HQ-XE/Owens, F. C.	13-Physics	
NCC 2-356	So. Cal Institute of Architecture	1620	Space station group activities habitability module study
<i>Period</i>	<i>Obligations</i>		
09/01/87-06/30/88	FY88: \$42,000	TOTAL: \$129,230	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Nixon, D. A.	ARC/Cohen, M. M.	79-Soc Sci, NEC	
Glassman, T. A.	ARC/Clearwater, Y. C.		
NAG 1-182	Stanford University	1621	High energy efficient solid state laser sources
<i>Period</i>	<i>Obligations</i>		
06/01/81-09/30/88	FY88: \$60,000	TOTAL: \$588,582	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Byer, R. L.	LARC/Magee, C. J.	45-Elec Engr	
	LARC/Newcomb, A. L.		
NAG 1-361	Stanford University	1622	Development of finite-element methods for high-speed compressible flows governed by the fuller and Navier-Stokes equations.
<i>Period</i>	<i>Obligations</i>		
05/01/83-04/30/89	FY88: \$94,126	TOTAL: \$457,841	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hughes, T. J.	LARC/Olsen, G. C.	29-Math/Cmputer, NEC	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 1-532	Stanford University	1623	Simulations of turbulent mixing and reacting flows and their application to turbulence modeling
<i>Period</i>	<i>Obligations</i>		
11/05/84-12/31/88	FY88: \$30,000	TOTAL: \$280,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ferziger, J. H.	LARC/Drummond, J. P.	46-Mech Engr	
Cantwell, B. J.	LARC/Zang, T. A.		
NAG 1-698	Stanford University	1624	Growth on new materials for solid state laser applications
<i>Period</i>	<i>Obligations</i>		
09/01/86-12/31/88	FY88:	TOTAL: \$120,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Feigelson, R. S.	LARC/Brockman, P.	13-Physics	
NAG 1-828	Stanford University	1625	Miniature solid state laser sources for inertial sensing
<i>Period</i>	<i>Obligations</i>		
11/02/87-11/01/88	FY88: \$29,960	TOTAL: \$29,960	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Byer, R. L.	LARC/Barnes, N.	13-Physics	
NAG 1-839	Stanford University	1626	Sunlight phase B study to design build and test a nonplanar ring oscillator
<i>Period</i>	<i>Obligations</i>		
12/16/87-09/30/88	FY88: \$110,000	TOTAL: \$110,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Byer, R. L.	LARC/Byvik, C. E.	13-Physics	
NAG 1-851	Stanford University	1627	Research and development of HgInTe as an infrared material
<i>Period</i>	<i>Obligations</i>		
02/03/88-02/02/89	FY88: \$50,000	TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Spicer, W. E.	LARC/Fripp, A. L.	13-Physics	
NAG 2-130	Stanford University	1628	Noninvasive determination of bone properties from mechanical measurement
<i>Period</i>	<i>Obligations</i>		
10/01/81-01/31/88	FY88: \$10,000	TOTAL: \$198,775	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Steele, C. R.	ARC/Arnaud, S. B.	56-Medical Sciences	
NAG 2-191	Stanford University	1629	Modeling and control of V/STOL aircraft
<i>Period</i>	<i>Obligations</i>		
08/15/82-10/14/88	FY88: \$25,000	TOTAL: \$295,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bryson, A. E.	ARC/Erzberger, H.	41-Aero Engr	
	ARC/Denery, D.		
NAG 2-248	Stanford University	1630	Design of testbed and emulation tools
<i>Period</i>	<i>Obligations</i>		
10/01/83-10/31/88	FY88: \$124,987	TOTAL: \$589,935	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lundstrom, S. F.	ARC/Stevens, K. G., Jr.	22-Computer Science	
Flynn, M. J.	ARC/Lim, R. S.		
Tennal, K. B.			
NAG 2-276	Stanford University	1631	High accuracy thermal conductivity measurements near the lambda transition of helium with very high temperature resolution
<i>Period</i>	<i>Obligations</i>		
11/01/83-08/31/88	FY88:	TOTAL: \$120,533	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Fairbanks, W. M.	ARC/Kittel, P.	13-Physics	
Lipa, J. A.			
NAG 2-292	Stanford University	1632	Fiber optics implementation of expressnet
<i>Period</i>	<i>Obligations</i>		
01/01/84-12/31/87	FY88:	TOTAL: \$150,192	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tobagi, F. A.	ARC/Grant, T. L.	45-Elec Engr	
	ARC/Lum, H.		
NAG 2-331	Stanford University	1633	Study of an annular wall jet
<i>Period</i>	<i>Obligations</i>		
10/01/84-03/31/87	FY88:	TOTAL: \$44,776	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Roberts, L.	ARC/Marvin, J. G.	41-Aero Engr	
Wood, N.	ARC/Brown, J. L.		
NAG 2-359	Stanford University	1634	Adaptive control of nonlinear systems
<i>Period</i>	<i>Obligations</i>		
08/01/85-08/31/87	FY88:	TOTAL: \$44,837	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Franklin, G. F.	ARC/Meyer, G.	49-Engr, NEC	
Kosut, R. L.			
NAG 2-472	Stanford University	1635	Experimental studies of H ₂ /O ₂ reaction systems at thermal to hyperthermal energies
<i>Period</i>	<i>Obligations</i>		
09/01/87-09/30/88	FY88:	TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Zare, R. N.	ARC/Jaffe, R. L.	12-Chemistry	
NAG 2-489	Stanford University	1636	Automated 3 D feature extraction from flow data
<i>Period</i>	<i>Obligations</i>		
10/01/87-10/31/88	FY88: \$181,868	TOTAL: \$181,868	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hesselink, L.	ARC/Watson, V. R.	41-Aero Engr	
Helman, J.	ARC/Vaziri, A.		
Wu, K.			
NAG 2-520	Stanford University	1637	Plasma wave phenomena associated with the question of lightning on Venus
<i>Period</i>	<i>Obligations</i>		
04/01/88-03/31/89	FY88: \$41,921	TOTAL: \$41,921	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Carpenter, D. L.	ARC/Lasher, L. E.	11-Astronomy	
	ARC/Fimmel, R. O.		
NAG 3-522	Stanford University	1638	Experimental study of the effects of very high turbulence on convective heat transfer
<i>Period</i>	<i>Obligations</i>		
04/01/84-11/27/88	FY88: \$25,000	TOTAL: \$407,708	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Moffat, R. J.	LERC/Gaugler, R. E.	46-Mech Engr	
Eaton, J. K.			

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 3-826 **Stanford University** **1639**
Optimal trajectories for low thrust space missions
Period *Obligations*
10/15/87-10/14/88 FY88: \$59,180 TOTAL: \$59,180
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Breakwell, J. V. LERC/Mulac, M. W. 42-Astro Engr
Golan, O. M. LERC/Spurlock, O. F.

NAG 8-26 **Stanford University** **1647**
Cryogenic equivalence principle experiment on shuttle
Period *Obligations*
08/01/84-03/23/89 FY88: \$320,000 TOTAL: \$769,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ereritt, C. W. MSFC/Decker, R. 13-Physics
Worden, P. W. MSFC/Strauss, E. N.

NAG 3-908 **Stanford University** **1640**
Optimal aerospace plane trajectories
Period *Obligations*
06/01/88-05/31/89 FY88: \$72,099 TOTAL: \$72,099
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Breakwell, J. V. LERC/Fishbach, L. H. 41-Aero Engr
Golan, O. M. LERC/Strack, W. C.

NAG 8-489 **Stanford University** **1648**
Protein crystal growth in low gravity
Period *Obligations*
08/09/84-07/30/88 FY88: TOTAL: \$307,070
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feigelson, R. S. MSFC/Fogle, V. 47-Materials Engr

NAG 3-914 **Stanford University** **1641**
New visualization of multi-dimensional data
Period *Obligations*
08/01/88-02/28/89 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chase, R. A. LERC/Steinberg, R. 49-Engr, NEC
Kim, S.
Freedman, S.

NAG 8-710 **Stanford University** **1649**
Search for rapidly spinning neutron stars X ray timing and spectral observations of LMXRBS with ginga
Period *Obligations*
03/01/88-02/28/89 FY88: \$12,450 TOTAL: \$12,450
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Michelson, P. F. MSFC/Harper, B. 13-Physics

NAG 5-476 **Stanford University** **1642**
Investigations of controlled and naturally occurring wave-particle interaction
Period *Obligations*
10/01/84-12/15/88 FY88: \$50,000 TOTAL: \$745,799
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helliwell, R. A. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAG 8-715 **Stanford University** **1650**
Combined buoyancy thermocapillary convection an experimental study
Period *Obligations*
04/01/88-03/31/89 FY88: \$35,000 TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Homsy, G. M. MSFC/Witherow, W. J. 99-Multi-Discip

NAG 5-622 **Stanford University** **1643**
The development and test of multi-anode microchannel array detector systems II soft X-ray detectors
Period *Obligations*
02/01/84-04/30/89 FY88: \$66,903 TOTAL: \$302,343
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Timothy, J. G. GSFC/Early, L. J. 13-Physics
GSFC/Pless, R. H.

NAG 9-262 **Stanford University** **1651**
Very large scale integration spine manipulator
Period *Obligations*
11/01/87-05/01/89 FY88: \$77,563 TOTAL: \$77,563
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leifer, L. J. JSC/Stokes, L. 46-Mech Engr
Maynard, R.

NAG 5-884 **Stanford University** **1644**
A comparative study of Dynamics Explorer satellite ground whistler data
Period *Obligations*
04/01/87-07/31/89 FY88: \$39,135 TOTAL: \$69,135
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carpenter, D. L. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAGW 235 **Stanford University** **1652**
Study of the dynamics of atmosphere-ionosphere-magnetosphere interactions
Period *Obligations*
08/15/81-10/31/88 FY88: \$525,000 TOTAL: \$3,455,845
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Banks, P. M. HQ-EE/Mellott, M. M. 42-Astro Engr
HQ-EE/Parks, G. K.

NAG 5-926 **Stanford University** **1645**
Block rotations Fault domains and crustal deformation in the western United States
Period *Obligations*
09/15/87-10/14/88 FY88: TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nur, A. GSFC/Welker, J. E. 32-Geological Sci

NAGW 278 **Stanford University** **1653**
Theoretical studies of the solar wind flow around the Earth and other planets
Period *Obligations*
03/01/82-07/31/89 FY88: \$140,500 TOTAL: \$420,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spreiter, J. R. HQ-ES/Mellott, M. M. 13-Physics
HQ-EE/Eastman, T. E.

NAG 5-944 **Stanford University** **1646**
Solar G mode oscillations comparison of SMM active cavity radiometer I radiance monitor and ground based observations
Period *Obligations*
07/01/87-06/30/88 FY88: TOTAL: \$17,137
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schevyer, P. H. GSFC/Bullock, G. D. 19-Phys Sci, NEC
Walker, A. B. GSFC/Gurman, J. B.

NAGW 299 **Stanford University** **1654**
Theoretical studies of cosmological tests from space observations
Period *Obligations*
03/01/82-03/31/89 FY88: \$23,000 TOTAL: \$127,006
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wagoner, R. V. HQ-EZ/Stachnik, R. V. 11-Astronomy
HQ-EZ/Boggess, N. W.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 419 **Stanford University** **1655**
Formation of the Stanford center for aeronautics and space information sciences

<i>Period</i>	<i>Obligations</i>	
01/12/83-11/30/88	FY88: \$1,016,000	TOTAL: \$4,997,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banks, P. M.	HQ-RC/Smith, P. H.	22-Computer Science
Wiskerchen, M. J.	HQ-RC/Holcomb, L. B.	

NAGW 1210 **Stanford University** **1663**
Analysis and interpretation of Voyager radio occultation observations of Uranus rings

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88:	TOTAL: \$184,703
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tyler, G. L.	HQ-EL/Quaide, W. L.	11-Astronomy
	HQ-EL/Boyce, J. M.	

NAGW 540 **Stanford University** **1656**
Evaluation of a deformable diffraction grating for a stigmatic EUV spectroheliometer

<i>Period</i>	<i>Obligations</i>	
02/01/84-11/30/88	FY88: \$75,993	TOTAL: \$331,628
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Timothy, J. G.	HQ-EZ/Ahluwalia, H. S.	13-Physics

NAGW 1232 **Stanford University** **1664**
Partial support of IAU colloquium no. 104 solar and stellar flares

<i>Period</i>	<i>Obligations</i>	
03/01/88-02/29/89	FY88: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sturrock, P.	HQ-EZ/Ahluwalia, H. S.	31-Atmos Sci

NAGW 628 **Stanford University** **1657**
Interpretation of SAR images of sea ice

<i>Period</i>	<i>Obligations</i>	
03/01/84-11/30/88	FY88: \$96,708	TOTAL: \$418,453
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vesecky, J.	HQ-EE/Jezek, K. C.	33-Oceanography
Bracewell, R.	HQ-EE/Wilson, W. S.	

NAGW 1252 **Stanford University** **1665**
Evaluation of the pidas field spectrometer

<i>Period</i>	<i>Obligations</i>	
12/01/87-11/30/88	FY88: \$15,307	TOTAL: \$15,307
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lyon, R. J.	HQ-EE/Wickland, D. E.	39-Env Sci, NEC
	HQ-EE/Ruzek, M. J.	

NAGW 965 **Stanford University** **1658**
Graduate hypersonic training and research

<i>Period</i>	<i>Obligations</i>	
08/01/86-07/31/89	FY88: \$298,000	TOTAL: \$698,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chapman, D. R.	HQ-RF/Wander, S. M.	13-Physics
Baganoff, D.	HQ-RF/Graves, R. A.	

NAS 5-27557 **Stanford University** **1666**
Implementation phase for the energetic gamma experiment telescope (EGRET)

<i>Period</i>	<i>Obligations</i>	
03/07/83-08/31/88	FY88: \$738,208	TOTAL: \$10,618,208
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hofstadter, R.	GSFC/Hartman, R. C.	11-Astronomy
Hughes, E. B.	GSFC/Campbell, C. E.	

NAGW 1068 **Stanford University** **1659**
Trace gas fluxes from amalonvan forests influence of soil fertility and disturbance

<i>Period</i>	<i>Obligations</i>	
03/15/87-03/14/89	FY88: \$55,000	TOTAL: \$114,916
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vitousek, P.	HQ-EB/Averner, M. M.	51-Biological Sci

NAS 5-28447 **Stanford University** **1667**
Data reduction and analysis for ISEE 1 spacecraft's VLF propagation experiment

<i>Period</i>	<i>Obligations</i>	
10/01/84-10/01/88	FY88: \$65,000	TOTAL: \$433,331
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Helliwell, R. A.	GSFC/Wales, R. O.	31-Atmos Sci

NAGW 1108 **Stanford University** **1660**
Solar wind control of magnetospheric current system using Wiener filtering techniques

<i>Period</i>	<i>Obligations</i>	
05/01/87-04/30/89	FY88: \$41,934	TOTAL: \$90,434
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peterson, A. M.	HQ-ES/Desch, M. D.	13-Physics
Clauer, R.	HQ-EE/Eastman, T. E.	

NAS 5-29389 **Stanford University** **1668**
Development of the MAMA detectors for the HST imaging spectrograph

<i>Period</i>	<i>Obligations</i>	
12/15/86-09/30/89	FY88: \$823,379	TOTAL: \$1,150,379
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Timothy, J. G.	GSFC/Vitagliano, D.	41-Aero Engr

NAGW 1140 **Stanford University** **1661**
Development and test of a pulse counting imaging detector system

<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/89	FY88: \$59,971	TOTAL: \$119,966
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Timothy, J. G.	HQ-EL/Mahaffy, P.	13-Physics
	HQ-EL/Quaide, W. L.	

NAS 5-30347 **Stanford University** **1669**
Technology and requirements for low cost small attached tethered systems for the international space station

<i>Period</i>	<i>Obligations</i>	
08/30/88-10/14/88	FY88: \$23,764	TOTAL: \$23,764
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banks, P.	GSFC/Hibbard, W.	31-Atmos Sci
Williamson, R.		

NAGW 1180 **Stanford University** **1662**
The small scale structure and dynamics of Uranus atmosphere

<i>Period</i>	<i>Obligations</i>	
09/15/87-09/14/89	FY88: \$75,000	TOTAL: \$145,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eshelman, V. R.	HQ-EL/Quaide, W. L.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NAS 8-35350 **Stanford University** **1670**
Research study: Sepac co-investigator support

<i>Period</i>	<i>Obligations</i>	
07/17/83-04/30/92	FY88: \$120,000	TOTAL: \$700,395
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banks, P. M.	MSFC/Hill, H.	13-Physics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 8-36125	Stanford University	1671	Gravity probe b, shuttle flight experiment, phase I <i>Period</i> 03/29/85-08/31/88 <i>Prin. Invest.</i> Mozer, F. S. Dedra, D. Fairbank, W.	<i>Obligations</i> FY88: \$12,404,000 NASA Tech. Officer MSFC/Ise, R.	TOTAL: \$31,501,760 <i>CASE Category</i> 13-Physics
NAS 8-36812	Stanford University	1672	Shuttle electrodynamic tether system sets <i>Period</i> 10/01/85-10/25/91 <i>Prin. Invest.</i> Banks, P.	<i>Obligations</i> FY88: \$1,487,000 NASA Tech. Officer MSFC/Sisson, J. M. MSFC/Holder, R.	TOTAL: \$2,152,000 <i>CASE Category</i> 31-Atmos Sci
NASW 3981	Stanford University	1673	Defunction and development of a space dome radio receiving system with occultation eistatic resolution imaging capabilities <i>Period</i> 11/01/84-08/31/88 <i>Prin. Invest.</i> Tyler, G. L.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Evans, L. G. HQ-EL/Quaid, W.	TOTAL: \$399,103 <i>CASE Category</i> 11-Astronomy
NASW 4093	Stanford University	1674	The development and test of ultra-large-format multi-diode microchannel array detector systems for space ultraviolet astronomy missions <i>Period</i> 08/01/85-02/29/88 <i>Prin. Invest.</i> Timothy, J. G.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EZ/Stachnik, R. V. HQ-EZ/Bogges, N. W.	TOTAL: \$999,159 <i>CASE Category</i> 13-Physics
NCA 2-11	Stanford University	1675	Investigation of 3D turbulent boundary layers <i>Period</i> 04/01/85-03/31/87 <i>Prin. Invest.</i> Johnston, J. P.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Driver, D. M.	TOTAL: \$40,000 <i>CASE Category</i> 46-Mech Engr
NCA 2-14	Stanford University	1676	Observations and modelling of star formation regions in M82 and the milky way <i>Period</i> 01/01/85-12/31/86 <i>Prin. Invest.</i> Petrosian, V.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Erickson, E.	TOTAL: \$26,835 <i>CASE Category</i> 11-Astronomy
NCA 2-30	Stanford University	1677	Intensive site studies in biogeochemical cycling: Tropical forest ecosystems (joint research interchange) <i>Period</i> 04/01/85-03/31/87 <i>Prin. Invest.</i> Vitousek, P.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Peterson, D. L.	TOTAL: \$73,421 <i>CASE Category</i> 54-Env Biology
NCA 2-31	Stanford University	1678	Variations in foliar nitrogen components with nutrient, light, and water limitations <i>Period</i> 04/01/85-03/31/87 <i>Prin. Invest.</i> Mooney, H. A.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Matson, P.	TOTAL: \$35,745 <i>CASE Category</i> 51-Biological Sci
NCA 2-53	Stanford University	1679	The effect of particle size and support crystallinity on the catalytic oxidation of CO over pd, pt alumina <i>Period</i> 06/01/85-05/31/87 <i>Prin. Invest.</i> Boudart, M.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Cooper, D. M.	TOTAL: \$14,638 <i>CASE Category</i> 43-Chem Engr
NCA 2-77	Stanford University	1680	3-D flow field visualization research <i>Period</i> 10/01/85-12/31/87 <i>Prin. Invest.</i> Hesselink, L.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Vaziri, A.	TOTAL: \$80,000 <i>CASE Category</i> 41-Aero Engr
NCA 2-78	Stanford University	1681	Optical computing for active mirror control <i>Period</i> 10/01/85-01/31/87 <i>Prin. Invest.</i> Goodman, J. W.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Ennis, D. J.	TOTAL: \$40,000 <i>CASE Category</i> 49-Engr, NEC
NCA 2-84	Stanford University	1682	Joined wing aircraft studies <i>Period</i> 07/01/85-06/30/87 <i>Prin. Invest.</i> Kroo, I.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Smith, S. C.	TOTAL: \$45,401 <i>CASE Category</i> 41-Aero Engr
NCA 2-93	Stanford University	1683	A study of astrometric measurements by time tagging photons <i>Period</i> 02/01/86-03/31/88 <i>Prin. Invest.</i> Timothy, J. G.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Scargle, J. D.	TOTAL: \$20,581 <i>CASE Category</i> 11-Astronomy
NCA 2-109	Stanford University	1684	Studies in architectures for AI applications <i>Period</i> 02/01/86-01/31/88 <i>Prin. Invest.</i> Flynn, M. J.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Lum, H.	TOTAL: \$79,603 <i>CASE Category</i> 45-Elec Engr
NCA 2-110	Stanford University	1685	Symbolic computation in parallel architectures for digital signal processing <i>Period</i> 06/01/86-05/31/88 <i>Prin. Invest.</i> Peterson, A. M. Linscott, I. R.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Oliver, B. M.	TOTAL: \$40,000 <i>CASE Category</i> 29-Math/Computer, NEC
NCA 2-116	Stanford University	1686	A direct particle simulation of rarefied flows for hypervelocity flight vehicles <i>Period</i> 04/01/86-03/31/88 <i>Prin. Invest.</i> Baganoff, D.	<i>Obligations</i> FY88: \$23,930 NASA Tech. Officer ARC/Feiereisen, W. GSFC/Deiwert, G. S.	TOTAL: \$76,694 <i>CASE Category</i> 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-144	Stanford University	1687	NCA 2-197	Stanford University	1695
Computer simulation of rarefied media			Experimental development of an optical computer for active mirror control		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-06/30/87	FY88:	TOTAL: \$35,521	03/01/87-05/31/88	FY88:	TOTAL: \$40,000
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Owen Storey, L. R.	ARC/Smith, B.	22-Computer Science	Goodman, J. W.	ARC/Lum, H.	45-Elec Engr
Buneman, O.					
NCA 2-146	Stanford University	1688	NCA 2-198	Stanford University	1696
Study of technology for low cost short duration satellite experiment			Computational fluid dynamics applied to artificial hearts		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-10/01/87	FY88:	TOTAL: \$36,000	03/01/87-02/28/89	FY88: \$40,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Banks, P. M.	ARC/Lemke, L. G.	42-Astro Engr	Chang, I. D.	ARC/Kwak, D.	49-Engr, NEC
NCA 2-150	Stanford University	1689	NCA 2-204	Stanford University	1697
Open boundary conditions for the Navier-Stokes equations			Interpretation of E D turbulent boundary layer experiments		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/86-09/30/88	FY88:	TOTAL: \$50,000	04/01/87-02/31/88	FY88:	TOTAL: \$15,000
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Oliger, J.	ARC/Beam, R. M.	22-Computer Science	Johnston, J. P.	ARC/Driver, D. M.	46-Mech Engr
	ARC/Warming, R. F.				
NCA 2-158	Stanford University	1690	NCA 2-208	Stanford University	1698
The recombination of nitrogen and oxygen atoms on surfaces of materials used in space vehicles			Human rated tether habitat		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-09/30/88	FY88:	TOTAL: \$42,894	05/01/87-02/29/88	FY88:	TOTAL: \$35,320
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Boudart, M.	ARC/Altman, R. L.	12-Chemistry	Powell, J. D.	ARC/Lemke, L. G.	42-Astro Engr
NCA 2-166	Stanford University	1691	NCA 2-228	Stanford University	1699
Numerical investigation of three dimensional plane wakes			Microbial mats and cyanobacteria carbon cycling and isotopic fractionation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/86-03/31/88	FY88:	TOTAL: \$960	06/15/87-01/31/88	FY88:	TOTAL: \$27,535
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Homsy, G.	ARC/Mansour, N.	41-Aero Engr	Briggs, W.	ARC/Des Marais, D.	51-Biological Sci
NCA 2-168	Stanford University	1692	NCA 2-233	Stanford University	1700
The effect of three-dimensionality in Reynolds averaged Navier-Stokes boundary layers wakes and turbulence models			Multigrid algorithms on hypercube architectures		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/86-09/30/88	FY88: \$25,500	TOTAL: \$48,600	07/01/87-06/30/89	FY88: \$24,978	TOTAL: \$48,483
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Spreiter, J. R.	ARC/Pulliam, T. H.	41-Aero Engr	Golub, G.	ARC/Jespersen, D.	22-Computer Science
				ARC/Barszcz, E.	
NCA 2-183	Stanford University	1693	NCA 2-239	Stanford University	1701
Full simulation of a viscous vortex ring			Measurement of tropical forest canopy chemistry using high spectral resolution remote sensing data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/01/86-06/30/88	FY88: \$6,600	TOTAL: \$31,400	07/15/87-07/14/88	FY88:	TOTAL: \$19,996
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Cantwell, B. J.	ARC/Spalart, P.	41-Aero Engr	Vitousek, P. M.	ARC/Peterson, D. L.	54-Env Biology
NCA 2-187	Stanford University	1694	NCA 2-243	Stanford University	1702
Design of experiments for comparison with direct numerical simulation of turbulent flows			Nonequilibrium rarefied flow		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/15/86-03/15/87	FY88:	TOTAL: \$20,000	07/01/87-06/30/89	FY88: \$23,968	TOTAL: \$44,887
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>	<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>
Cantwell, B. J.	ARC/Davis, S.	41-Aero Engr	MacCormack, R. W.	ARC/Deiwert, G. S.	41-Aero Engr
			Chapman, D. R.		

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-258	Stanford University	1703		NCA 2-286	Stanford University	1711	
Theoretical ecology a relationship with NASA's research in life sciences				Two dimensional magnetized solar wind model			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
10/01/87-09/30/89	FY88: \$40,000	TOTAL: \$40,000		02/01/88-04/30/89	FY88: \$50,000	TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Roughgarden, J.	ARC/MacElroy, R. D.	51-Biological Sci		Owen Storey, L. R.	ARC/Barnes, A.	11-Astronomy	
NCA 2-259	Stanford University	1704		NCA 2-287	Stanford University	1712	
Numerical techniques for solving the Navier-Stokes equations with a two equation turbulence model in three dimensions				Unsteady flow measurements on delta wing models forced to high angles of attack			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$30,052	TOTAL: \$30,052		01/01/88-12/31/88	FY88: \$25,000	TOTAL: \$25,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
MacCormack, R. W.	ARC/Viegas, J. R.	41-Aero Engr		Ashley, H.	ARC/Margason, R. J.	41-Aero Engr	
					ARC/Naumowicz, T.		
NCA 2-263	Stanford University	1705		NCA 2-302	Stanford University	1713	
Large impacts during Earth's accretion				Preliminary design of a satellite kinetic tether experiment			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
09/16/87-09/15/88	FY88: \$49,991	TOTAL: \$49,991		04/01/88-09/30/88	FY88: \$15,806	TOTAL: \$15,806	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Sleep, N.	ARC/Kasting, J. F.	11-Astronomy		Barkan, P.	ARC/Lemke, L. G.	46-Mech Engr	
	ARC/Pollack, J. B.			Newman, E.			
				Fuchs, H.			
NCA 2-265	Stanford University	1706		NCA 2-308	Stanford University	1714	
A new laser Doppler velocimeter approach for near wall and three dimensional turbulence measurements				Preliminary design of a low cost instrument deployment mechanism			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
11/01/87-10/31/88	FY88: \$35,296	TOTAL: \$35,296		04/01/88-09/30/88	FY88: \$15,559	TOTAL: \$15,559	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Eaton, J. K.	ARC/Johnson, D. A.	46-Mech Engr		Barkan, P.	ARC/Black, D. C.	46-Mech Engr	
				Newman, E.	ARC/Lemke, L. G.		
				Reeves, E.			
NCA 2-269	Stanford University	1707		NCA 2-311	Stanford University	1715	
Investigation and evaluation for private sector utilization and operation of RRS capabilities				Repair of damaged composites			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
10/15/87-04/30/88	FY88: \$39,740	TOTAL: \$39,740		06/01/88-05/31/90	FY88: \$20,000	TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Germane, G.	ARC/Givens, J. J.	99-Multi-Discip		Springer, G. S.	ARC/Nelson, H. G.	41-Aero Engr	
NCA 2-271	Stanford University	1708		NCA 2-313	Stanford University	1716	
Application of the joined wing concept to transport aircraft design and evaluation				Development of a particle simulation method for rarefied hypersonic flows			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
10/15/87-10/14/88	FY88: \$33,990	TOTAL: \$33,990		04/01/88-03/31/89	FY88: \$39,987	TOTAL: \$39,987	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kroo, I.	ARC/Smith, S. C.	41-Aero Engr		Baganoff, D.	ARC/Deiwert, G. S.	41-Aero Engr	
					ARC/Feierisen, W. J.		
NCA 2-283	Stanford University	1709		NCA 2-324	Stanford University	1717	
Studies of Saturn's ring system				An analysis of nonlinear critical layer			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
01/01/88-12/31/88	FY88: \$40,000	TOTAL: \$40,000		06/01/88-10/31/88	FY88: \$5,000	TOTAL: \$5,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tyler, G. L.	ARC/Cuzzi, J. N.	11-Astronomy		Van Dyke, M.	ARC/Kim, J.	46-Mech Engr	
NCA 2-285	Stanford University	1710		NCA 2-331	Stanford University	1718	
Simulation of turbulent reacting flows				Wavefront control for a large segmented mirror telescope			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
01/01/88-12/31/88	FY88: \$26,665	TOTAL: \$26,665		06/01/88-03/31/89	FY88: \$19,960	TOTAL: \$19,960	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ferziger, J. H.	ARC/Kim, J.	46-Mech Engr		Goodman, J. W.	ARC/Lum, H.	45-Elec Engr	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-332	Stanford University	1719			
The paleoecology of early Archean terrestrial organisms and its relevance to the evolution of life on Mars					
<i>Period</i>	<i>Obligations</i>				
07/01/88-06/30/90	FY88: \$22,000	TOTAL: \$22,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lowe, D. R.	ARC/Marais, D. D.	32-Geological Sci			
NCA 2-333	Stanford University	1720			
Technology and requirements for low cost reusable reentry satellite system development and operations planning					
<i>Period</i>	<i>Obligations</i>				
06/13/88-10/15/88	FY88: \$40,000	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Banks, P.	ARC/Chow, L.	49-Engr, NEC			
NCA 2-338	Stanford University	1721			
Advanced architecture for knowledge based systems					
<i>Period</i>	<i>Obligations</i>				
07/01/88-06/30/90	FY88: \$39,943	TOTAL: \$39,943			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Flynn, M. J.	ARC/Lum, H.	29-Math/Cmputer, NEC			
NCA 2-339	Stanford University	1722			
Experimental blade compressible vortex interaction diagnostics and code verification analysis					
<i>Period</i>	<i>Obligations</i>				
07/01/88-06/30/89	FY88: \$23,905	TOTAL: \$23,905			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bershader, D.	ARC/Yu, Y. H.	41-Aero Engr			
	ARC/Tung, C.				
NCA 2-343	Stanford University	1723			
Aerodynamics of the oblique flying wing concept					
<i>Period</i>	<i>Obligations</i>				
06/21/88-03/31/89	FY88: \$20,000	TOTAL: \$20,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kroo, I.	ARC/Mehta, U.	41-Aero Engr			
NCA 2-344	Stanford University	1724			
Hydrological modeling of tropical wetland dynamics					
<i>Period</i>	<i>Obligations</i>				
08/15/88-08/14/90	FY88: \$30,000	TOTAL: \$30,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Remson, I.	ARC/Sebesta, P. D.	39-Env Sci, NEC			
Gorelick, S.					
NCA 2-745411	Stanford University	1725			
Optical information processing					
<i>Period</i>	<i>Obligations</i>				
06/01/84-03/31/87	FY88:	TOTAL: \$67,613			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hesselink, L.	ARC/Ennis, D. J.	41-Aero Engr			
NCA 2-745504	Stanford University	1726			
Identification of neurotransmitter receptors in human emetic pathways					
<i>Period</i>	<i>Obligations</i>				
01/01/85-08/31/87	FY88:	TOTAL: \$40,099			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Peroutka, S. J.	ARC/Daunton, N. G.	51-Biological Sci			
NCA 5-106	Stanford University	1727			
Telecommunications research, radar and radio remote sensing of the environment					
<i>Period</i>	<i>Obligations</i>				
03/17/86-08/31/87	FY88: \$25,000	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Inan, U.	GSFC/Connell, T.	39-Env Sci, NEC			
NCC 2-15	Stanford University	1728			
A cooperative program in the computation of turbulent flows					
<i>Period</i>	<i>Obligations</i>				
07/01/79-03/31/88	FY88:	TOTAL: \$595,510			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferziger, J. H.	ARC/Ragallo, R. S.	41-Aero Engr			
Reynolds, W. C.	ARC/Inouye, M.				
NCC 2-55	Stanford University	1729			
The research and training activities for the Joint Institute for Aeronautics and Acoustics					
<i>Period</i>	<i>Obligations</i>				
12/01/79-10/31/88	FY88: \$715,000	TOTAL: \$2,248,110			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roberts, L.	ARC/Edenborough, H. K.	41-Aero Engr			
	ARC/Murphy, J. D.				
NCC 2-77	Stanford University	1730			
Boundary layers and wakes of oscillating airfoils at subsonic and transonic speeds					
<i>Period</i>	<i>Obligations</i>				
03/01/80-07/31/87	FY88:	TOTAL: \$742,223			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roberts, L.	ARC/Schairer, E. T.	41-Aero Engr			
NCC 2-106	Stanford University	1731			
Studies of flight director systems for powered lift aircraft					
<i>Period</i>	<i>Obligations</i>				
11/01/80-09/30/88	FY88: \$105,000	TOTAL: \$957,504			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bryson, A. E., Jr.	ARC/Hilbert, K. B.	41-Aero Engr			
Hindson, W. S.	ARC/Chen, R. T.				
NCC 2-150	Stanford University	1732			
Study of powered lift aircraft technology					
<i>Period</i>	<i>Obligations</i>				
07/01/81-02/29/88	FY88:	TOTAL: \$513,456			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roberts, L. R.	ARC/Aoyagi, K.	41-Aero Engr			
Tavella, J. D.	ARC/Corsiglia, V. R.				
NCC 2-220	Stanford University	1733			
Advanced knowledge-based system architectures					
<i>Period</i>	<i>Obligations</i>				
10/01/82-03/31/88	FY88:	TOTAL: \$689,940			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Feigenbaum, E. A.	ARC/Friedland, P. E.	22-Computer Science			
Buchanan, B. G.	ARC/Bull, J. S.				
NCC 2-238	Stanford University	1734			
Experimental studies of three dimensional turbulent boundary layers					
<i>Period</i>	<i>Obligations</i>				
03/01/83-06/30/87	FY88: \$133	TOTAL: \$165,202			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Eaton, J. K.	ARC/Johnson, D. A.	46-Mech Engr			
Anderson, S. D.	ARC/Marvin, J. G.				

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-291 **Stanford University** **1735**
Optimization of the cure window for a large scale filament wound case
Period *Obligations*
03/01/84-09/30/87 FY88: TOTAL: \$213,000
Prin. Invest. NASA Tech. Officer CASE Category
Springer, G. S. ARC/Cagliostro, D. 41-Aero Engr
ARC/Ledbetter, F. E.

NCC 2-341 **Stanford University** **1743**
Study of leading edge blowing on a delta wing
Period *Obligations*
10/01/84-09/30/87 FY88: TOTAL: \$45,896
Prin. Invest. NASA Tech. Officer CASE Category
Roberts, L. ARC/Bencze, D. P. 41-Aero Engr
ARC/Schiff, L. B.

NCC 2-294 **Stanford University** **1736**
Experimental studies of vortex flows
Period *Obligations*
03/01/84-01/31/88 FY88: TOTAL: \$358,242
Prin. Invest. NASA Tech. Officer CASE Category
Roberts, L. ARC/King, L. S. 41-Aero Engr
ARC/Davis, S. S.

NCC 2-376 **Stanford University** **1744**
Circulation control aerodynamics
Period *Obligations*
10/01/85-04/30/87 FY88: TOTAL: \$156,672
Prin. Invest. NASA Tech. Officer CASE Category
Roberts, L. ARC/Marvin, J. G. 41-Aero Engr
Woods, N. ARC/Brown, J. L.

NCC 2-295 **Stanford University** **1737**
Design development of an eva prehensor
Period *Obligations*
01/01/84-04/30/88 FY88: \$40,992 TOTAL: \$546,992
Prin. Invest. NASA Tech. Officer CASE Category
Leifer, L. ARC/Vykukal, H. C. 49-Engr, NEC
Leblanc, M.

NCC 2-384 **Stanford University** **1745**
Aerodynamics of oblique wings
Period *Obligations*
10/01/85-08/31/88 FY88: \$45,000 TOTAL: \$149,751
Prin. Invest. NASA Tech. Officer CASE Category
Kroo, I. B. ARC/Smith, S. C. 41-Aero Engr
ARC/Carmichael, R. L.

NCC 2-304 **Stanford University** **1738**
Environmental effects on composite materials
Period *Obligations*
08/01/84-02/28/89 FY88: \$20,000 TOTAL: \$140,000
Prin. Invest. NASA Tech. Officer CASE Category
Springer, G. S. ARC/Nelson, H. G. 47-Materials Engr

NCC 2-389 **Stanford University** **1746**
Develop the kinetic isolation tether experiment
Period *Obligations*
01/01/86-12/31/88 FY88: \$89,415 TOTAL: \$353,669
Prin. Invest. NASA Tech. Officer CASE Category
Powell, J. D. ARC/Lemke, L. G. 42-Astro Engr

NCC 2-307 **Stanford University** **1739**
To initiate a NASA/university collaborative center of excellence in model-based human performance
Period *Obligations*
07/01/84-11/14/88 FY88: \$190,438 TOTAL: \$777,381
Prin. Invest. NASA Tech. Officer CASE Category
Wandell, B. A. ARC/Ahumada, A. J. 69-Psych, NEC
ARC/Watson, A. B.

NCC 2-390 **Stanford University** **1747**
Study of augmentor delta wing aerodynamics
Period *Obligations*
10/01/85-10/31/88 FY88: \$28,000 TOTAL: \$85,365
Prin. Invest. NASA Tech. Officer CASE Category
Roberts, L. ARC/Erickson, L. E. 41-Aero Engr
Lund, T. ARC/Corsiglia, V. R.

NCC 2-322 **Stanford University** **1740**
Stanford Ames institute for space research
Period *Obligations*
09/01/84-09/30/88 FY88: \$72,300 TOTAL: \$291,093
Prin. Invest. NASA Tech. Officer CASE Category
Petrosian, V. ARC/Black, D. 99-Multi-Discip
ARC/Brockner, D.

NCC 2-394 **Stanford University** **1748**
The physical and chemical properties of small metal particles/clusters, part I
Period *Obligations*
11/01/85-10/31/89 FY88: \$100,000 TOTAL: \$300,000
Prin. Invest. NASA Tech. Officer CASE Category
Madix, R. J. ARC/Cooper, D. M. 12-Chemistry
Boudart, M.
Lindau, I.

NCC 2-326 **Stanford University** **1741**
Studies of influence of blowing on vortical lift
Period *Obligations*
10/01/84-10/31/88 FY88: TOTAL: \$320,981
Prin. Invest. NASA Tech. Officer CASE Category
Roberts, L. ARC/Murphy, J. 41-Aero Engr
Wood, N. ARC/Erickson, G. E.

NCC 2-445 **Stanford University** **1749**
SETI instrumentation systems research
Period *Obligations*
10/01/86-09/30/88 FY88: \$401,019 TOTAL: \$690,045
Prin. Invest. NASA Tech. Officer CASE Category
Peterson, A. M. ARC/Jones, H. W. 45-Elec Engr
Linscott, I. R. ARC/Oliver, B. M.

NCC 2-333 **Stanford University** **1742**
Control of spacecraft manipulator systems
Period *Obligations*
11/01/84-10/31/88 FY88: \$555,000 TOTAL: \$1,490,000
Prin. Invest. NASA Tech. Officer CASE Category
Cannon, R. H. ARC/Lum, H. 42-Astro Engr

NCC 2-460 **Stanford University** **1750**
Center for turbulence research
Period *Obligations*
12/01/86-11/30/88 FY88: \$782,947 TOTAL: \$1,282,947
Prin. Invest. NASA Tech. Officer CASE Category
Moin, P. ARC/Rogallo, R. F. 46-Mech Engr
Reynolds, W. C. ARC/Lomax, H.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

<p>NCC 2-461</p> <p>Images interactive motion and graphic environment simulator</p> <p><i>Period</i> 01/01/87-12/31/87 <i>Prin. Invest.</i> Leifer, L. J. Van Der Loos, H.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: TOTAL: \$114,000 <i>NASA Tech. Officer</i> ARC/Brockner, D. H. CASE Category ARC/Dust, D. C. 29-Math/Computer, NEC</p>	<p>1751</p>	<p>NCC 2-547</p> <p>Laser based measurements of OH in a shock tunnel</p> <p><i>Period</i> 07/01/88-02/28/89 <i>Prin. Invest.</i> Hanson, R. K.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$110,000 <i>NASA Tech. Officer</i> ARC/Chapman, G. T. CASE Category ARC/Strawa, A. 41-Aero Engr</p>	<p>1759</p>
<p>NCC 2-494</p> <p>Intelligent communicating agents</p> <p><i>Period</i> 08/01/87-01/31/89 <i>Prin. Invest.</i> Nilsson, N. J.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$738,995 <i>NASA Tech. Officer</i> ARC/Friedland, P. E. CASE Category ARC/Lum, H. 22-Computer Science</p>	<p>1752</p>	<p>NCC 2-549</p> <p>Shock tube investigation of dynamic response of pressure transducers for validation of rotor performance measurements</p> <p><i>Period</i> 07/01/88-11/30/88 <i>Prin. Invest.</i> Bershader, D.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$12,000 <i>NASA Tech. Officer</i> ARC/Baker, F. A. CASE Category ARC/Cross, J. 41-Aero Engr</p>	<p>1760</p>
<p>NCC 2-510</p> <p>Effects of residual stress on cracks at weldments</p> <p><i>Period</i> 10/15/87-12/14/88 <i>Prin. Invest.</i> Nelson, D. V.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$30,000 <i>NASA Tech. Officer</i> ARC/Nelson, H. G. CASE Category 47-Materials Engr</p>	<p>1753</p>	<p>NCC 5-30</p> <p>Space science mission operations support</p> <p><i>Period</i> 03/01/84-10/31/88 <i>Prin. Invest.</i> Banks, P. M. Wiskerchen, M. J.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: TOTAL: \$1,892,402 <i>NASA Tech. Officer</i> GSFC/Keith, B. H. CASE Category 49-Engr, NEC</p>	<p>1761</p>
<p>NCC 2-514</p> <p>Conservation of design knowledge</p> <p><i>Period</i> 12/01/87-11/30/88 <i>Prin. Invest.</i> Leifer, L.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$199,712 <i>NASA Tech. Officer</i> ARC/Friedland, P. E. CASE Category 22-Computer Science</p>	<p>1754</p>	<p>NCC 9-15</p> <p>Remote science operation center research</p> <p><i>Period</i> 02/01/86-10/01/88 <i>Prin. Invest.</i> Banks, P. M.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$10,000 <i>NASA Tech. Officer</i> JSC/Leblanc, G. R. CASE Category 49-Engr, NEC</p>	<p>1762</p>
<p>NCC 2-528</p> <p>The variable gravity facility</p> <p><i>Period</i> 02/01/88-09/30/88 <i>Prin. Invest.</i> Powell, J. D.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$52,400 <i>NASA Tech. Officer</i> ARC/Lemke, L. G. CASE Category 42-Astro Engr</p>	<p>1755</p>	<p>NCC 10-1</p> <p>Space systems integration and operations research applications</p> <p><i>Period</i> 11/14/86-10/21/88 <i>Prin. Invest.</i> Banks, P. M.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$858,589 <i>NASA Tech. Officer</i> KSC/Spears, J. M. CASE Category 22-Computer Science</p>	<p>1763</p>
<p>NCC 2-532</p> <p>Circulation control aerodynamics</p> <p><i>Period</i> 10/01/87-10/31/88 <i>Prin. Invest.</i> Roberts, L.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$15,000 <i>NASA Tech. Officer</i> ARC/Viegas, J. R. CASE Category ARC/Marvin, J. G. 41-Aero Engr</p>	<p>1756</p>	<p>NGL 05-020-008</p> <p>A study of the effects on the Earth's environment of very low frequency radiation into the magnetosphere from electrical transmission lines and ground based very low frequency transmitters</p> <p><i>Period</i> 09/01/61-02/28/89 <i>Prin. Invest.</i> Helliwell, R. A.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$215,000 <i>NASA Tech. Officer</i> HQ-ES/Mellott, M. M. CASE Category HQ-ES/Parks, G. K. 13-Physics</p>	<p>1764</p>
<p>NCC 2-537</p> <p>Development of a reusable knowledge base for space applications</p> <p><i>Period</i> 11/01/87-08/31/88 <i>Prin. Invest.</i> Buchanan, B. G. Feigenbaum, E. A.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$236,548 <i>NASA Tech. Officer</i> ARC/Friedland, P. E. CASE Category MSFC/Freeman, M. 22-Computer Science</p>	<p>1757</p>	<p>NGL 05-020-014</p> <p>Theoretical and experimental radio and radar studies of lunar, planetary ionospheres, atmospheres, and surfaces of Sun and interplanetary medium</p> <p><i>Period</i> 04/30/63-09/30/88 <i>Prin. Invest.</i> Eshleman, V. R.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$140,000 <i>NASA Tech. Officer</i> HQ-EL/Fox, K. CASE Category HQ-EL/Quaide, W. L. 31-Atmos Sci</p>	<p>1765</p>
<p>NCC 2-543</p> <p>Aerodynamic and thermal control of hypersonic vehicles through leading edge blowing</p> <p><i>Period</i> 10/01/87-03/31/89 <i>Prin. Invest.</i> Roberts, L.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$116,514 <i>NASA Tech. Officer</i> ARC/Holst, T. L. CASE Category ARC/Chaussee, D. S. 41-Aero Engr</p>	<p>1758</p>	<p>NGL 05-020-243</p> <p>Refined methods of aeroelastic analysis and optimization</p> <p><i>Period</i> 08/14/67-08/31/90 <i>Prin. Invest.</i> Ashley, H.</p>	<p>Stanford University</p> <p><i>Obligations</i> FY88: \$22,000 <i>NASA Tech. Officer</i> LARC/Doggett, R. V., Jr. CASE Category 41-Aero Engr</p>	<p>1766</p>

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGL 05-020-272	Stanford University	1767			
Theoretical study of the solar atmosphere and the structure of active regions					
<i>Period</i>	<i>Obligations</i>				
06/07/68-09/30/88	FY88: \$145,000	TOTAL: \$2,054,013			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sturrock, P. A.	HQ-ES/Ahluwalia, H. S.	13-Physics			
NGR 05-020-559	Stanford University	1768			
Structure of solar magnetic and velocity fields					
<i>Period</i>	<i>Obligations</i>				
03/22/72-11/30/88	FY88: \$135,000	TOTAL: \$1,762,826			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Scherrer, P. H.	HQ-EZ/Ahluwalia, H. S.	11-Astronomy			
NGR 05-020-649	Stanford University	1769			
Study of lunar and planetary surfaces					
<i>Period</i>	<i>Obligations</i>				
03/06/73-10/31/88	FY88: \$50,000	TOTAL: \$388,057			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tyler, G. L.	HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	32-Geological Sci			
NGR 05-020-668	Stanford University	1770			
Magnetosphere structure and radiation mechanisms on pulsars					
<i>Period</i>	<i>Obligations</i>				
11/01/73-10/31/88	FY88: \$68,000	TOTAL: \$565,892			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sturrock, P. A.	HQ-EZ/Kaluzienski, L. J. HQ-EZ/Bunner, A. N.	11-Astronomy			
NGT 00-050-016	Stanford University	1771			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
06/15/86-06/14/89	FY88: \$18,000	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Banks, P. M.	HQ-LE/Owens, F. C.	45-Elec Engr			
NGT 00-050-035	Stanford University	1772			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
07/01/86-06/30/89	FY88: \$18,000	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Timothy, J. G.	HQ-LE/Owens, F. C.	13-Physics			
NGT 00-050-151	Stanford University	1773			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
06/15/87-06/14/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Banks, P. M.	HQ-XE/Owens, F. C.	45-Elec Engr			
NGT 00-050-168	Stanford University	1774			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
06/22/87-09/30/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shortliffe, E.	HQ-XE/Owens, F. C.	22-Computer Science			
NGT 00-050-171	Stanford University	1775			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
10/01/87-09/30/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Vitousek, P.	HQ-XE/Owens, F. C.	99-Multi-Disc			
NGT 00-050-220	Stanford University	1776			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Leifer, L.	HQ-XE/Owens, F. C.	46-Mech Engr			
NGT 00-050-347	Stanford University	1777			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Petrocian, V.	HQ-XE/Owens, F. C.	13-Physics			
NGT 00-050-350	Stanford University	1778			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
08/01/88-07/31/89	FY88: \$16,500	TOTAL: \$16,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hargens, A.	HQ-XE/Owens, F. C.	56-Medical Sciences			
NGT 00-050-359	Stanford University	1779			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
09/16/88-09/15/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bryson, A. E.	HQ-XE/Owens, F. C.	41-Aero Engr			
NGT 00-050-383	Stanford University	1780			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Banks, P. Wiskerchen, M. Cutkosky, M.	HQ-XE/Owens, F. C.	13-Physics			
NGT 00-050-389	Stanford University	1781			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bershader, D.	HQ-XE/Owens, F. C.	41-Aero Engr			
NGT 00-070-016	Stanford University	1782			
Graduate student researchers underrepresented minority focus program					
<i>Period</i>	<i>Obligations</i>				
04/01/87-03/31/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Banks, P. M.	HQ-LE/Owens, F. C.	41-Aero Engr			
NGT 00-070-056	Stanford University	1783			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
09/25/87-09/24/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Eshleman, V. R.	HQ-XE/Owens, F. C.	45-Elec Engr			
NGT 00-070-072	Stanford University	1784			
Graduate student researchers underrepresented minority focus program					
<i>Period</i>	<i>Obligations</i>				
01/01/88-12/31/88	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Leifer, L.	HQ-XE/Owens, F. C.	46-Mech Engr			

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGT 00-070-078 **Stanford University** **1785**
Graduate student researchers underrepresented minority focus program
Period *Obligations*
04/01/88-03/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacCormack, R. W. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 05-020-412 **Stanford University** **1786**
A summer program of NASA summer faculty fellowships
Period *Obligations*
12/16/69-03/31/89 FY88: \$355,081 TOTAL: \$4,342,357
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bershader, D. HQ-XE/McGee, A. S. 49-Engr, NEC
Mayers, J. HQ-XE/Schwartz, E. T.

NSG 5131 **Stanford University** **1787**
Spectroscopy of cosmic X-ray sources of the solar corona
Period *Obligations*
11/15/76-12/31/88 FY88: \$200,000 TOTAL: \$1,885,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, A. B. GSFC/Early, L. J. 13-Physics
Underwood, J. H. GSFC/Pless, R. H.

NSG 7092 **Stanford University** **1788**
Energy release in solar flares based on OSO-5 data
Period *Obligations*
10/01/74-10/31/88 FY88: \$70,500 TOTAL: \$745,799
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Petrosian, V. HQ-EZ/Ahluwalia, H. S. 11-Astronomy

NAG 1-725 **University of California - Berkeley** **1789**
Calculation of flow past closed bodies using interpolation methods
Period *Obligations*
11/13/86-11/12/88 FY88: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holt, M. LARC/Dwoyer, D. L. 41-Aero Engr
LARC/Zang, T. A.

NAG 1-879 **University of California - Berkeley** **1790**
Requirements of wall gas interaction studies to be supported by tethered satellite
Period *Obligations*
05/01/88-04/30/89 FY88: \$24,918 TOTAL: \$24,918
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hurlbut, F. C. LARC/Wood, G. M. 41-Aero Engr

NAG 2-208 **University of California - Berkeley** **1791**
Spectroscopic observation of infrared lines normally obscured by atmospheric absorption
Period *Obligations*
11/01/82-01/31/89 FY88: \$174,775 TOTAL: \$706,490
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Townes, C. H. ARC/Haughney, L. C. 11-Astronomy
Genzel, R.

NAG 2-243 **University of California - Berkeley** **1792**
Control systems design methodologies in a computer aided design environment
Period *Obligations*
10/01/83-10/31/88 FY88: \$75,000 TOTAL: \$356,780
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sastry, S. S. ARC/Meyer, G. 49-Engr, NEC
Desoer, C.
Polak, E.

NAG 2-254 **University of California - Berkeley** **1793**
A multi-transition study of excited CO from molecular cloud cores with a 200 m-500 m heterodyne spectrometer
Period *Obligations*
10/01/83-01/31/89 FY88: \$125,900 TOTAL: \$444,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Betz, A. L. ARC/Haughney, L. C. 11-Astronomy

NAG 2-321 **University of California - Berkeley** **1794**
Evaluation and characterization of hybrid arrays
Period *Obligations*
10/01/84-12/31/87 FY88: TOTAL: \$150,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arens, J. F. ARC/McCreight, C. R. 13-Physics
Lacy, J. H. ARC/Goebel, J. H.

NAG 2-338 **University of California - Berkeley** **1795**
The effectiveness of information display systems under conditions of focused attention and long term vigilance
Period *Obligations*
01/01/85-12/31/87 FY88: TOTAL: \$80,284
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hardyck, C. D. ARC/Bucher, N. M. 69-Psych, NEC

NAG 2-378 **University of California - Berkeley** **1796**
The control of turbulent mixing layer and the dynamics of small scales
Period *Obligations*
10/01/85-09/30/88 FY88: \$23,610 TOTAL: \$88,295
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Corcos, G. M. ARC/Davis, S. 41-Aero Engr

NAG 2-393 **University of California - Berkeley** **1797**
Measurements of the spatial structure and directivity of 100 keV photon sources in solar flares using PVO and ISEE 3 spacecraft
Period *Obligations*
04/01/86-03/31/89 FY88: \$27,000 TOTAL: \$76,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, K. ARC/Lasher, L. E. 11-Astronomy
ARC/Fimmel, R. O.

NAG 2-425 **University of California - Berkeley** **1798**
Shock interaction with blunt body flows
Period *Obligations*
10/01/86-10/31/87 FY88: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holt, M. ARC/Yee, H. C. 41-Aero Engr

NAG 2-448 **University of California - Berkeley** **1799**
Micromotional studies of utricular and canal afferents
Period *Obligations*
01/01/87-12/31/88 FY88: \$55,900 TOTAL: \$100,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lewis, E. R. ARC/Ross, M. D. 51-Biological Sci
ARC/Holton, E. M.

NAG 2-471 **University of California - Berkeley** **1800**
Oblique supersonic flying wing
Period *Obligations*
06/15/87-12/14/87 FY88: \$13,694 TOTAL: \$13,694
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holt, M. ARC/Mehta, U. B. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 2-483 University of California - Berkeley 1801
Streamline patterns in local separated regions
Period *Obligations*
10/01/87-09/30/88 FY88: \$22,488 TOTAL: \$22,488
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holt, M. ARC/Schiff, L. B. 41-Aero Engr

NAG 3-146 University of California - Berkeley 1802
Surface tension phenomena under low and zero gravity conditions
Period *Obligations*
01/07/81-12/31/87 FY88: TOTAL: \$331,964
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Concus, P. LERC/Chai, A. T. 13-Physics
Finn, R.
Hesseling, B.

NAG 3-443 University of California - Berkeley 1803
Fundamental study of smoldering with emphasis on experimental design for zero G
Period *Obligations*
06/30/83-10/14/88 FY88: \$25,944 TOTAL: \$250,529
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pagni, P. J. LERC/Stocker, D. P. 49-Engr, NEC
Fernandez-pello, A. C. LERC/Olson, S. L.

NAG 3-735 University of California - Berkeley 1804
Stability and unsteadiness due to a cross stream boundary layer collision process in flow through curved ducts
Period *Obligations*
11/20/86-05/31/88 FY88: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Humphrey, J. A. LERC/Sockol, P. M. 46-Mech Engr

NAG 3-857 University of California - Berkeley 1805
Spatial distribution of deep level in semiconductors
Period *Obligations*
01/01/88-12/31/88 FY88: \$16,994 TOTAL: \$16,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weber, E. R. LERC/Bailey, S. G. 45-Elec Engr

NAG 3-861 University of California - Berkeley 1806
The effects of buoyancy on the stability of premixed laminar flows
Period *Obligations*
01/02/88-01/01/89 FY88: \$22,662 TOTAL: \$22,662
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pello, A. C. LERC/Stocker, D. P. 46-Mech Engr

NAG 5-69 University of California - Berkeley 1807
Eclipse coverage of selected variable and binary stars
Period *Obligations*
06/01/80-06/30/87 FY88: TOTAL: \$164,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, C. S. GSFC/Kondo, Y. 11-Astronomy
Brodie, J. P.
McCarthy, P.

NAG 5-95 University of California - Berkeley 1808
Research relative to low noise amplifiers for radio astronomy
Period *Obligations*
09/01/80-03/31/89 FY88: \$74,769 TOTAL: \$451,435
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Welch, W. J. GSFC/Clark, T. A. 19-Phys Sci, NEC
Backer, D. C. GSFC/Wildes, W. T.

NAG 5-375 University of California - Berkeley 1809
Electric field studies
Period *Obligations*
10/01/83-12/31/88 FY88: \$22,000 TOTAL: \$880,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mozer, F. S. GSFC/Wales, R. O. 45-Elec Engr
Cattell, C. A.
Wygant, J. R.

NAG 5-376 University of California - Berkeley 1810
Energetic particle and X-ray studies
Period *Obligations*
10/01/83-04/30/89 FY88: \$69,000 TOTAL: \$1,049,045
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, K. A. GSFC/Wales, R. O. 31-Atmos Sci
Lin, R. P.
Kane, S.

NAG 5-576 University of California - Berkeley 1811
Chromospheric activity in solar mass pre-main sequence stars
Period *Obligations*
06/15/85-10/14/87 FY88: TOTAL: \$38,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Basri, G. S. GSFC/Kondo, Y. 11-Astronomy
Finkenzeller, U.
Giampapa, M. S.

NAG 5-646 University of California - Berkeley 1812
Spectroscopic observations of ultraviolet radiance coupling and energetics an interdisciplinary rocket program
Period *Obligations*
03/01/88-02/28/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chakrabarti, S. GSFC/Early, L. J. 13-Physics
GSFC/Pless, R. H.

NAG 5-935 University of California - Berkeley 1813
Collaborative analysis of SMM vena and prognos solar X ray bursts
Period *Obligations*
08/01/87-07/31/89 FY88: \$24,200 TOTAL: \$47,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hurley, K. C. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Gurman, J. B.

NAG 5-959 University of California - Berkeley 1814
Scientific definition study for the electron reflectometer addition to the magnetic fields investigation on the Mars observe mission
Period *Obligations*
08/01/87-12/14/88 FY88: \$200,000 TOTAL: \$250,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, R. P. GSFC/Acuna, M. H. 13-Physics

NAG 5-1007 University of California - Berkeley 1815
High efficiency opaque photocathodes
Period *Obligations*
09/15/87-09/14/88 FY88: TOTAL: \$24,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lampton, M. L. GSFC/Woodgate, B. E. 11-Astronomy
Siegmond, O. H. GSFC/Michalitsianos, A. G.

NAG 5-1062 University of California - Berkeley 1816
Disk activity in T Tauri stars
Period *Obligations*
08/01/88-07/31/89 FY88: \$25,700 TOTAL: \$25,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Basri, G. GSFC/Kondo, Y. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 6-10	University of California - Berkeley	1817			
Sounding rocket research program					
<i>Period</i>		<i>Obligations</i>			
11/01/80-10/31/88	FY88: \$232,000	TOTAL: \$1,789,249			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Carlson, C. W.	GSFC/Early, L. J.	19-Phys Sci, NEC			
Mozer, F. S.	GSFC/Pless, R. H.				
Anderson, K. A.					
NAG 8-73	University of California - Berkeley	1818			
A low cost extreme ultraviolet spectrometer for planetary observations from the Space Shuttle					
<i>Period</i>		<i>Obligations</i>			
05/01/86-10/31/88	FY88:	TOTAL: \$92,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lampton, M. L.	MSFC/Dessler, A. J.	11-Astronomy			
	MSFC/Waites, J. H.				
NAG 8-679	University of California - Berkeley	1819			
Increasing HRI detections of IPC sources					
<i>Period</i>		<i>Obligations</i>			
08/01/87-07/31/88	FY88:	TOTAL: \$4,891			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McKee, C. F.	MSFC/Harper, B. A.	11-Astronomy			
NAG 8-680	University of California - Berkeley	1820			
Objective grating X ray spectroscopy of compact binary sources					
<i>Period</i>		<i>Obligations</i>			
08/15/87-08/14/89	FY88: \$30,000	TOTAL: \$60,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kahn, S. M.	MSFC/Harper, B. A.	11-Astronomy			
Goldstien, W. H.					
NAG 9-34	University of California - Berkeley	1821			
Isotopic studies in meteorites lunar samples					
<i>Period</i>		<i>Obligations</i>			
02/01/83-02/01/89	FY88: \$142,000	TOTAL: \$971,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reynolds, J. H.	JSC/Browne, I. D.	13-Physics			
NAGW 66	University of California - Berkeley	1822			
Microwave and theoretical studies related to the COBE satellite mission					
<i>Period</i>		<i>Obligations</i>			
07/01/80-02/28/89	FY88: \$25,000	TOTAL: \$205,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Smoot, G. F.	HQ-EZ/Gillett, F. C.	11-Astronomy			
	HQ-EZ/Weiler, E. J.				
NAGW 239	University of California - Berkeley	1823			
Geotropic stimulus production in roots of corn					
<i>Period</i>		<i>Obligations</i>			
08/01/81-10/31/88	FY88: \$50,000	TOTAL: \$324,569			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Feldman, L. J.	HQ-EB/Halstead, T. W.	51-Biological Sci			
NAGW 270	University of California - Berkeley	1824			
Quantitative spectroscopy of comets					
<i>Period</i>		<i>Obligations</i>			
12/01/81-06/30/89	FY88: \$50,497	TOTAL: \$247,874			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Spinrad, H.	HQ-EL/Brinton, H. C.	11-Astronomy			
	HQ-EL/Rahe, J. H.				
NAGW 427	University of California - Berkeley	1825			
Thioredoxin-linked enzyme regulative as a probe for studying the evolution of photosynthesis					
<i>Period</i>		<i>Obligations</i>			
02/01/83-12/31/88	FY88: \$50,073	TOTAL: \$296,833			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Buchanan, B. B.	HQ-EB/Fogleman, S. W.	51-Biological Sci			
	HQ-EB/Rummel, J. D.				
NAGW 516	University of California - Berkeley	1826			
Observational techniques for solar flare gamma-rays hard X-rays and neutrons					
<i>Period</i>		<i>Obligations</i>			
11/01/83-11/30/88	FY88: \$180,000	TOTAL: \$578,651			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lin, R. P.	HQ-EZ/Ahluwalia, H. S.	13-Physics			
	HQ-EZ/Bohlin, J. D.				
NAGW 526	University of California - Berkeley	1827			
Proposal to build a vastly improved data acquisition system for the Berkeley SETI program: Seren dip II					
<i>Period</i>		<i>Obligations</i>			
01/01/84-09/30/88	FY88: \$16,250	TOTAL: \$110,150			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bowyer, C. S.	HQ-EB/Rummel, J. D.	11-Astronomy			
Tarter, J.	HQ-EB/Averner, M.				
Buitse, R.					
NAGW 604	University of California - Berkeley	1828			
Experimental studies pertaining to the nature of the Earth's cone					
<i>Period</i>		<i>Obligations</i>			
04/15/84-11/14/88	FY88: \$80,000	TOTAL: \$230,549			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jeanloz, R.	HQ-EL/Underwood, J.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAGW 681	University of California - Berkeley	1829			
A directed search for laser signals at 10 UM					
<i>Period</i>		<i>Obligations</i>			
11/15/84-11/14/88	FY88: \$54,000	TOTAL: \$211,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Betz, A. L.	HQ-EB/Rummel, J. D.	13-Physics			
	HQ-EB/Averner, M.				
NAGW 776	University of California - Berkeley	1830			
Radial diffusion of energetic electrons in Jupiter's magnetosphere					
<i>Period</i>		<i>Obligations</i>			
07/15/85-07/15/88	FY88:	TOTAL: \$67,822			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
De Pater, I.	HQ-EL/Fox, K.	13-Physics			
	HQ-EL/Quaide, W. L.				
NAGW 868	University of California - Berkeley	1831			
Assistance for the cosmic ray nuclei experiment/passive resolution extension package (CRNE/PREP)					
<i>Period</i>		<i>Obligations</i>			
02/01/86-09/30/88	FY88: \$113,000	TOTAL: \$277,234			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Price, P. B.	HQ-EZ/Jones, W. V.	11-Astronomy			
	HQ-EZ/Kaluzienski, L. J.				

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 881 University of California - Berkeley 1832
Development of EOS aided procedures for the determination of the water balance or hydrologic budget of a large watershed
Period *Obligations*
03/15/86-03/31/89 FY88: \$215,003 TOTAL: \$565,003
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Congalton, R. G. HQ-EE/Miller, T. L. 39-Env Sci, NEC
Thomas, R.
Zinke, P.

NAGW 1022 University of California - Berkeley 1833
Far infrared laser spectroscopy of ultracold carbon clusters and their relationship to interstellar dust
Period *Obligations*
02/15/87-02/14/89 FY88: \$110,000 TOTAL: \$250,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saykally, R. J. HQ-E/Alexander, J. K. 19-Phys Sci, NEC
HQ-EP/Konkel, R. M.

NAGW 1240 University of California - Berkeley 1834
Development of a 4 steradian imaging detector for planetary electron magnetometry perm on the lunar observer
Period *Obligations*
01/01/88-12/31/88 FY88: \$58,000 TOTAL: \$58,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, R. P. HQ-EL/Evans, L. G. 19-Phys Sci, NEC
HQ-EL/Quaide, W. L.

NAGW 1298 University of California - Berkeley 1835
Giotto data analysis
Period *Obligations*
04/01/88-04/30/89 FY88: \$197,000 TOTAL: \$197,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, R. P. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Quaide, W. L.

NAGW 1349 University of California - Berkeley 1836
Numerical simulations great red spot of Jupiter
Period *Obligations*
05/01/88-04/30/89 FY88: \$40,944 TOTAL: \$40,944
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marcus, P. S. HQ-EL/Fox, K. 46-Mech Engr
HQ-EL/Quaide, W. L.

NAGW 1352 University of California - Berkeley 1837
Rocket borne submillimeter wave astronomy
Period *Obligations*
05/01/88-01/31/89 FY88: \$90,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lange, A. E. HQ-EZ/Gillett, F. C. 11-Astronomy

NAS 1-17806 University of California - Berkeley 1838
Definition of science requirements for LDEF mission II heavy nuclei collection and for the demonstration of the HNC detector performance
Period *Obligations*
09/28/84-12/31/88 FY88: TOTAL: \$719,025
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Price, P. B. LARC/O'neal, R. L. 11-Astronomy

NAS 1-18686 University of California - Berkeley 1839
Plasma arc welding in space
Period *Obligations*
06/09/88-06/08/90 FY88: \$132,000 TOTAL: \$132,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rubinsky, B. LARC/Clark, L. G. 42-Astro Engr
LARC/Buckley, J. D.

NAS 5-26847 University of California - Berkeley 1840
Study of electric field instruments for the open polar plasma laboratory (PPL) and geomagnetic tail laboratory (GTL) satellites
Period *Obligations*
05/07/82-12/31/88 FY88: \$489,987 TOTAL: \$694,179
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mozer, F. S. GSFC/Wainscott, F. H. 13-Physics

NAS 5-26855 University of California - Berkeley 1841
Definition study of 3-D plasma and energetic particle distribution under the OPEN (origin of plasmas in the Earth's neighborhood project)
Period *Obligations*
05/08/82-12/31/88 FY88: \$490,000 TOTAL: \$1,139,787
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, R. P. GSFC/Wainscott, F. 13-Physics

NAS 5-27592 University of California - Berkeley 1842
Cosmic Background Explorer (COBE) project science participation
Period *Obligations*
05/01/83-12/31/89 FY88: \$268,000 TOTAL: \$1,229,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smoot, G. F. GSFC/Mather, J. C. 11-Astronomy
GSFC/Nicholson, L. W.

NAS 5-28086 University of California - Berkeley 1843
Continued ST science instrument team support for faint object camera (FOC) instrument
Period *Obligations*
03/13/84-09/30/92 FY88: TOTAL: \$464,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, I. GSFC/Kalinowski, J. K. 11-Astronomy

NAS 5-29298 University of California - Berkeley 1844
Extreme ultraviolet Explorer project
Period *Obligations*
06/19/86-09/30/91 FY88: \$5,907,000 TOTAL: \$17,206,725
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Malina, R. GSFC/Schultz, D. 11-Astronomy

NAS 5-29318 University of California - Berkeley 1845
Development of a prototype germanium detector system for the Mars geoscience/climatology orbiter (MGCO) mission
Period *Obligations*
02/25/86-02/29/88 FY88: TOTAL: \$193,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, R. P. GSFC/Trombka, J. I. 11-Astronomy
Delling, P. M. GSFC/Schmadebeck, R.
Pehl, R. H.

NAS 5-30180 University of California - Berkeley 1846
Science effort associated with the EUVE
Period *Obligations*
05/01/87-09/30/91 FY88: \$621,000 TOTAL: \$908,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hunten, D. GSFC/Smith, A. 11-Astronomy

NAS 5-30241 University of California - Berkeley 1847
Electric fields investigation for ISTP geotail spacecraft
Period *Obligations*
01/07/88-09/30/93 FY88: \$54,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mozer, F. S. GSFC/Wainscott, F. 13-Physics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 8-32577 University of California - Berkeley 1848
 Spacelab mission 1 experiment 95 far UV observations using the Faust instrument on the first Spacelab mission

<i>Period</i>	<i>Obligations</i>	
05/10/77-04/30/92	FY88: \$223,000	TOTAL: \$2,566,653
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowyer, S.	MSFC/Harwell, R.	31-Atmos Sci
Lampton, M.	MSFC/Eady, R.	

NCA 2-108 University of California - Berkeley 1856
 Effect of the microenvironment on molecular recognition in prebiotic systems

<i>Period</i>	<i>Obligations</i>	
02/01/86-01/31/88	FY88:	TOTAL: \$79,993
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tinoco, I.	ARC/MacElroy, R. D.	51-Biological Sci
Pohorille, A.		

NASW 3575 University of California - Berkeley 1849
 Complete positive ions, electrons and ram negative ion measurements near comet Halley

<i>Period</i>	<i>Obligations</i>	
03/15/82-03/31/88	FY88:	TOTAL: \$1,067,099
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, R. P.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NCA 2-126 University of California - Berkeley 1857
 Interstellar grain chemistry

<i>Period</i>	<i>Obligations</i>	
06/15/86-06/14/88	FY88:	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKee, C.	ARC/Hollenbach, D.	11-Astronomy

NASW 4099 University of California - Berkeley 1850
 Large format photon counting UV detectors for space astronomy

<i>Period</i>	<i>Obligations</i>	
09/01/85-03/31/88	FY88:	TOTAL: \$253,670
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lampton, M. L.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Bogges, N.	

NCA 2-128 University of California - Berkeley 1858
 Measurement and characterization of computer performance

<i>Period</i>	<i>Obligations</i>	
06/01/86-12/31/88	FY88: \$24,981	TOTAL: \$79,981
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, A. J.	ARC/Stevens, K. G.	22-Computer Science

NASW 4211 University of California - Berkeley 1851
 Auger electron spectroscopy of planetary bodies

<i>Period</i>	<i>Obligations</i>	
11/01/86-03/31/88	FY88:	TOTAL: \$49,976
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, R. P.	HQ-EL/Quaide, W.	13-Physics
	HQ-EL/Gold, R. E.	

NCA 2-140 University of California - Berkeley 1859
 The formation stability and permeability of membranes derived from protobiological molecules

<i>Period</i>	<i>Obligations</i>	
08/01/86-07/31/88	FY88:	TOTAL: \$74,551
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Packer, L.	ARC/MacElroy, R. D.	51-Biological Sci
Mehlhorn, R.		
Pohorille, A.		

NCA 2-37 University of California - Berkeley 1852
 Computational techniques applicable to supercritical airfoil flow and flow at high angles of attack

<i>Period</i>	<i>Obligations</i>	
04/01/85-03/31/87	FY88:	TOTAL: \$80,002
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Chapman, G. T.	46-Mech Engr
Trezek, G. J.	ARC/Schiff, L. B.	

NCA 2-163 University of California - Berkeley 1860
 Fatigue behavior and interlaminar strength of composite structures

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/87	FY88:	TOTAL: \$37,706
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dharan, C. K.	ARC/Haslim, L. A.	46-Mech Engr

NCA 2-64 University of California - Berkeley 1853
 Evolution of magnetic molecular clouds

<i>Period</i>	<i>Obligations</i>	
08/01/85-02/29/88	FY88:	TOTAL: \$77,114
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shu, F. H.	ARC/Cassen, P.	11-Astronomy

NCA 2-209 University of California - Berkeley 1861
 Interaction between a supersonic plume and a base flow region

<i>Period</i>	<i>Obligations</i>	
05/15/87-05/14/89	FY88: \$35,375	TOTAL: \$69,136
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Holst, T. L.	46-Mech Engr
	ARC/Chaussee, D. S.	

NCA 2-67 University of California - Berkeley 1854
 Effects of shock waves in regions of star formation (joint research interchange)

<i>Period</i>	<i>Obligations</i>	
08/01/85-07/31/88	FY88:	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKee, C.	ARC/Hollenbach, D.	11-Astronomy

NCA 2-227 University of California - Berkeley 1862
 Optical and near infrared properties of elliptical galaxies as a function of environment and redshift

<i>Period</i>	<i>Obligations</i>	
07/01/87-09/15/88	FY88:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spinrad, H.	ARC/Werner, M.	11-Astronomy

NCA 2-94 University of California - Berkeley 1855
 Joint technology transfer study

<i>Period</i>	<i>Obligations</i>	
02/01/86-07/31/87	FY88:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bender, R.	ARC/Dacanay, M. D.	99-Multi-Discip

NCA 2-231 University of California - Berkeley 1863
 Use of campus facilities and services by NASA to support research on the formation and function of membrane structures

<i>Period</i>	<i>Obligations</i>	
06/01/87-06/30/87	FY88:	TOTAL: \$7,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Packer, L.	ARC/MacElroy, R. D.	51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-240	University of California - Berkeley	1864
Prototype 3HE refrigerators for space applications		
<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/89	FY88: \$25,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lange, A.	ARC/Kittel, P.	19-Phys Sci, NEC
NCA 2-249	University of California - Berkeley	1865
Investigation of flow at high angles of attack and shock high flow interaction		
<i>Period</i>	<i>Obligations</i>	
07/01/87-06/30/89	FY88: \$30,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Chapman, G. T.	46-Mech Engr
NCA 2-270	University of California - Berkeley	1866
Coagulation of small dust grains in the early solar nebula		
<i>Period</i>	<i>Obligations</i>	
12/01/87-11/30/88	FY88: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKee, C.	ARC/Allamandola, L. J.	11-Astronomy
NCA 2-275	University of California - Berkeley	1867
Turbulence modelling for interaction of an oblique shock wave with supersonic flows past a cowl lip		
<i>Period</i>	<i>Obligations</i>	
12/01/87-11/30/88	FY88: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Chaussee, D.	46-Mech Engr
NCA 2-277	University of California - Berkeley	1868
Transfer of resonance line radiation in interstellar shock waves		
<i>Period</i>	<i>Obligations</i>	
01/01/88-12/31/88	FY88: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKee, C.	ARC/Hollenbach, D.	11-Astronomy
NCA 2-279	University of California - Berkeley	1869
The spatial distribution of the infrared radiation from reflection nebulae		
<i>Period</i>	<i>Obligations</i>	
01/01/88-12/31/88	FY88: \$21,000	TOTAL: \$21,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cohen, M. Heiles, C.	ARC/Werner, M. W. ARC/Allamandola, L. J.	11-Astronomy
NCA 2-280	University of California - Berkeley	1870
Analysis of CSRDF data with concomitant development of tactics expert functions		
<i>Period</i>	<i>Obligations</i>	
01/01/88-12/31/89	FY88: \$35,245	TOTAL: \$35,245
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meredith, W. Agolino, A.	ARC/Bucher, N. M. ARC/Huff, E. M.	69-Psych, NEC
NCA 2-281	University of California - Berkeley	1871
The interaction of astrophysical jets with their environment		
<i>Period</i>	<i>Obligations</i>	
01/01/88-12/31/89	FY88: \$80,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Klein, R.	ARC/Smith, B. F.	19-Phys Sci, NEC
NCA 2-334	University of California - Berkeley	1872
Excitation of the OH radical in an ozone hydrogen flame		
<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$9,916	TOTAL: \$9,916
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, S. P.	ARC/Valero, F. P.	11-Astronomy
NCA 2-342	University of California - Berkeley	1873
Instrumentation for high atmosphere experiments in the Berkeley low pressure wind tunnel		
<i>Period</i>	<i>Obligations</i>	
07/01/88-03/31/89	FY88: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hurlbut, F. C.	ARC/Deiwert, G. S.	41-Aero Engr
NCC 2-36	University of California - Berkeley	1874
Selected target search for extra-terrestrial intelligence observations using very long base interferometry techniques and pattern recognition studies		
<i>Period</i>	<i>Obligations</i>	
10/16/79-09/30/88	FY88: \$43,331	TOTAL: \$497,956
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shu, F. Tarter, J.	ARC/Jones, H. W. ARC/Wolfe, J. H.	99-Multi-Discip
NCC 2-86	University of California - Berkeley	1875
Flight management systems		
<i>Period</i>	<i>Obligations</i>	
06/01/80-12/31/88	FY88: \$171,000	TOTAL: \$891,365
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stark, L.	ARC/Ellis, S. R.	99-Multi-Discip
NCC 2-142	University of California - Berkeley	1876
Detection, identification, and precise location of infrared objects		
<i>Period</i>	<i>Obligations</i>	
07/01/81-09/30/89	FY88: \$119,165	TOTAL: \$456,566
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heiles, C. E. Cohen, M.	ARC/Wittenborn, F. C. ARC/Goorvitch, D.	11-Astronomy
NCC 2-275	University of California - Berkeley	1877
Application of fuzzy logic to systems analysis and control		
<i>Period</i>	<i>Obligations</i>	
10/01/83-10/31/88	FY88: \$92,173	TOTAL: \$397,173
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zadeh, L.	ARC/Friedland, P. E.	22-Computer Science
NCC 2-340	University of California - Berkeley	1878
Understanding and controlling drag in the presence of interacting large scale flow structures		
<i>Period</i>	<i>Obligations</i>	
01/01/85-02/29/88	FY88:	TOTAL: \$30,032
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Humphrey, J. A. Marcus, D. L.	ARC/Chapman, G. T.	41-Aero Engr
NCC 2-548	University of California - Berkeley	1879
Star formation and the evolution of elliptical galaxies		
<i>Period</i>	<i>Obligations</i>	
07/01/88-05/31/89	FY88: \$226,311	TOTAL: \$226,311
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shu, F. H.	ARC/Hollenbach, D. J. ARC/Casser, P.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-550 University of California - Berkeley 1880
 Research on computer system benchmarking
Period *Obligations*
 08/01/88-01/31/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, A. J. ARC/Stevens, K. G. 22-Computer Science

NGT 00-050-014 University of California - Berkeley 1888
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-12/31/88 FY88: \$10,500 TOTAL: \$46,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Price, P. B. HQ-LE/Owens, F. C. 13-Physics

NGL 05-003-017 University of California - Berkeley 1881
 Investigation of high energy solar flare radiation and trapped radiation, including balloon-borne and sounding rocket tests of prototype detectors
Period *Obligations*
 04/08/83-07/31/89 FY88: TOTAL: \$2,681,841
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Anderson, K. A. HQ-ES/Mellott, M. M. 19-Phys Sci, NEC
 Kane, S. HQ-EE/Eastman, T. E.

NGT 00-050-017 University of California - Berkeley 1889
 NASA graduate student researchers program
Period *Obligations*
 08/01/86-07/31/89 FY88: \$36,000 TOTAL: \$52,575
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Feldman, L. J. HQ-LE/Owens, F. C. 51-Biological Sci

NGL 05-003-497 University of California - Berkeley 1882
 Research in space sciences
Period *Obligations*
 04/05/72-03/31/89 FY88: \$230,000 TOTAL: \$3,740,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McKee, C. F. HQ-E/Alexander, J. A. 13-Physics
 HQ-EP/Konkel, R. M.

NGT 00-050-018 University of California - Berkeley 1890
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-05/31/89 FY88: \$18,000 TOTAL: \$52,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Betz, A. L. HQ-LE/Owens, F. C. 13-Physics

NGR 05-003-376 University of California - Berkeley 1883
 High resolution studies of cosmic rays and solar particles
Period *Obligations*
 04/16/71-10/31/88 FY88: \$120,000 TOTAL: \$1,781,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Price, P. B. HQ-ES/Mellott, M. M. 11-Astronomy
 Tarle, G. HQ-EZ/Kaluzienski, L. J.

NGT 00-050-022 University of California - Berkeley 1891
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-05/31/89 FY88: \$17,700 TOTAL: \$52,350
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sadoulet, B. HQ-LE/Owens, F. C. 13-Physics

NGR 05-003-450 University of California - Berkeley 1884
 Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths
Period *Obligations*
 05/28/71-11/30/88 FY88: \$535,000 TOTAL: \$3,869,114
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bowyer, C. S. GSFC/Early, L. J. 11-Astronomy
 GSFC/Pless, R. H.

NGT 00-050-037 University of California - Berkeley 1892
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-08/31/88 FY88: TOTAL: \$31,878
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Haller, E. F. HQ-LE/Owens, F. C. 47-Materials Engr

NGR 05-003-460 University of California - Berkeley 1885
 The chemistry of living systems
Period *Obligations*
 07/21/71-10/31/88 FY88: \$44,000 TOTAL: \$1,348,049
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Jukes, J. H. HQ-EB/Rummel, J. D. 12-Chemistry
 Bush, J. W. HQ-EB/Averner, M.

NGT 00-050-099 University of California - Berkeley 1893
 NASA graduate student researchers program
Period *Obligations*
 08/01/86-08/03/87 FY88: TOTAL: \$17,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cranz, G. HQ-LE/Owens, F. C. 99-Multi-Discip

NGR 05-003-513 University of California - Berkeley 1886
 Heavy ion fragment experiments at the bevatron
Period *Obligations*
 10/01/73-10/31/88 FY88: \$100,000 TOTAL: \$1,783,270
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Crawford, H. J. HQ-ES/Mellott, M. M. 11-Astronomy
 Greiner, D. E. HQ-EZ/Kaluzienski, L. J.

NGT 00-050-166 University of California - Berkeley 1894
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$16,188 TOTAL: \$29,803
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Russell, S. J. HQ-XE/Owens, F. C. 22-Computer Science

NGR 05-003-578 University of California - Berkeley 1887
 Theoretical X-ray and gamma-ray astronomy
Period *Obligations*
 08/01/73-10/31/88 FY88: \$42,000 TOTAL: \$624,439
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Silk, J. I. HQ-EZ/Weiler, E. J. 11-Astronomy
 HQ-EZ/Stachnik, R. V.

NGT 00-050-178 University of California - Berkeley 1895
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$35,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mozer, F. C. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-179 University of California - Berkeley 1896
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$17,900 TOTAL: \$35,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Richards, P. L. HQ-XE/Owens, F. C. 13-Physics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGT 00-050-185 University of California - Berkeley 1897
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$35,800
Prin. Invest. NASA Tech. Officer CASE Category
 Bowyer, C. S. HQ-XE/Owens, F. C. 11-Astronomy

NGT 05-003-805 University of California - Berkeley 1906
 NASA graduate student researchers program
Period Obligations
 06/01/85-12/31/87 FY88: TOTAL: \$35,900
Prin. Invest. NASA Tech. Officer CASE Category
 Bowyer, C. S. HQ-LE/Owens, F. C. 11-Astronomy

NGT 00-050-271 University of California - Berkeley 1898
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Larson, D. E. HQ-ES/Ahluwalia, H. S. 13-Physics
 Anderson, K. A. HQ-ES/Eastman, T.

NSG 7205 University of California - Berkeley 1907
 Far infrared all-sky survey
Period Obligations
 02/01/76-09/30/89 FY88: \$90,000 TOTAL: \$865,500
Prin. Invest. NASA Tech. Officer CASE Category
 Richards, P. L. HQ-EZ/Gillett, F. C. 11-Astronomy
 HQ-EZ/Weiler, E. J.

NGT 00-050-278 University of California - Berkeley 1899
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$17,800 TOTAL: \$17,800
Prin. Invest. NASA Tech. Officer CASE Category
 Townes, C. H. HQ-EZ/Nagy, T. 11-Astronomy

NAG 1-669 University of California - Davis 1908
 Advanced computational methods for aerodynamics
Period Obligations
 04/16/86-04/30/89 FY88: \$75,000 TOTAL: \$225,169
Prin. Invest. NASA Tech. Officer CASE Category
 Hafez, M. M. LARC/Salas, M. D. 41-Aero Engr
 LARC/Keller, J. D.

NGT 00-050-293 University of California - Berkeley 1900
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Feldman, L. J. HQ-XE/Owens, F. C. 19-Phys Sci, NEC

NAG 1-732 University of California - Davis 1909
 The aerodynamic characteristics of crescent Moon wing shapes
Period Obligations
 01/15/87-11/30/88 FY88: TOTAL: \$29,852
Prin. Invest. NASA Tech. Officer CASE Category
 Van Dam, C. P. LARC/Holmes, B. J. 41-Aero Engr
 LARC/Johnson, J. L., Jr.

NGT 00-050-312 University of California - Berkeley 1901
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$17,800 TOTAL: \$17,800
Prin. Invest. NASA Tech. Officer CASE Category
 Lange, A. E. HQ-XE/Owens, F. C. 13-Physics

NAG 2-221 University of California - Davis 1910
 Modeling pilot interaction with automated digital avionics systems
Period Obligations
 01/01/83-06/30/89 FY88: \$49,090 TOTAL: \$248,419
Prin. Invest. NASA Tech. Officer CASE Category
 Hess, R. A. ARC/Cheng, V. H. 41-Aero Engr
 ARC/Legacqz, J. V.

NGT 00-050-313 University of California - Berkeley 1902
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$17,600 TOTAL: \$17,600
Prin. Invest. NASA Tech. Officer CASE Category
 Anderson, K. A. HQ-XE/Owens, F. C. 13-Physics

NAG 2-341 University of California - Davis 1911
 The effects of hypergravic fields on neural processing of sensory thermoregulatory and vestibular systems in the rat
Period Obligations
 03/01/85-11/30/88 FY88: TOTAL: \$112,563
Prin. Invest. NASA Tech. Officer CASE Category
 Horowitz, J. M. ARC/Holton, E. M. 51-Biological Sci
 Horwitz, B. A.

NGT 00-070-034 University of California - Berkeley 1903
 Graduate student researchers underrepresented minority focus program
Period Obligations
 08/01/87-07/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Stark, L. HQ-XE/Owens, F. C. 13-Physics

NAG 2-349 University of California - Davis 1912
 Homeostasis in primates in hyperacceleration fields
Period Obligations
 04/01/85-11/30/88 FY88: \$102,000 TOTAL: \$352,800
Prin. Invest. NASA Tech. Officer CASE Category
 Fuller, C. A. ARC/Holton, E. M. 51-Biological Sci

NGT 00-070-074 University of California - Berkeley 1904
 Graduate student researchers underrepresented minority focus program
Period Obligations
 01/01/88-12/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Weber, E. R. HQ-XE/Owens, F. C. 47-Materials Engr

NAG 2-428 University of California - Davis 1913
 Space station aesthetics a study of arousal preference and attitude
Period Obligations
 12/01/86-06/30/89 FY88: TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
 Coss, R. G. ARC/Clearwater, Y. A. 69-Psych, NEC

NGT 05-003-804 University of California - Berkeley 1905
 NASA graduate student researchers program
Period Obligations
 07/01/84-06/30/87 FY88: TOTAL: \$50,992
Prin. Invest. NASA Tech. Officer CASE Category
 Shu, F. H. HQ-LB/Owens, F. C. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 2-431	University of California - Davis	1914			
Incorporation of privacy elements in space station design					
	<i>Period</i>		<i>Obligations</i>		
01/01/87-12/31/87		FY88:	TOTAL: \$9,898		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Harrison, A. A.		ARC/Clearwater, Y. A.	69-Psych, NEC		
NAG 2-455	University of California - Davis	1915			
Effects of vitamin D deficiency and immobilization on the strength of monkey femurs					
	<i>Period</i>		<i>Obligations</i>		
04/01/87-06/30/88		FY88:	TOTAL: \$31,792		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Martin, R. B.		ARC/Arnaud, S. B.	56-Medical Sciences		
NAG 2-467	University of California - Davis	1916			
Squirrel monkey requirements for chronic acceleration research					
	<i>Period</i>		<i>Obligations</i>		
08/01/87-10/31/88		FY88: \$40,000	TOTAL: \$65,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Fuller, C. A.		ARC/Winget, C. M.	54-Env Biology		
		ARC/Ballard, R. W.			
NAG 2-482	University of California - Davis	1917			
Techniques for the assessment of manned flight simulator fidelity					
	<i>Period</i>		<i>Obligations</i>		
10/01/87-10/31/88		FY88: \$28,731	TOTAL: \$28,731		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hess, R. A.		ARC/Bray, R. S.	41-Aero Engr		
		ARC/Atencio, A.			
NAG 2-490	University of California - Davis	1918			
Predicting pilot induced oscillations using the optimal control model of the human pilot					
	<i>Period</i>		<i>Obligations</i>		
10/01/87-10/31/88		FY88: \$27,140	TOTAL: \$27,140		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hess, R. A.		ARC/Berry, D. T.	41-Aero Engr		
NAG 3-667	University of California - Davis	1919			
Probability density functions for reacting turbulent flows					
	<i>Period</i>		<i>Obligations</i>		
01/30/86-12/31/88		FY88:	TOTAL: \$91,354		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Kollman, W.		LERC/Vanoverbeke, T.	46-Mech Engr		
NAG 3-836	University of California - Davis	1920			
Pdf closure model for compressible turbulent chemically reacting flows					
	<i>Period</i>		<i>Obligations</i>		
01/01/88-12/30/89		FY88: \$100,000	TOTAL: \$100,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Kollman, W.		LERC/Claus, R. W.	41-Aero Engr		
NAG 5-937	University of California - Davis	1921			
Modeling of vegetation atmosphere interactions for fire					
	<i>Period</i>		<i>Obligations</i>		
07/15/87-03/14/89		FY88: \$15,500	TOTAL: \$37,205		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Paw U, K. T.		GSFC/Camiilo, P.	39-Env Sci, NEC		
Sellers, P. J.		GSFC/Hall, F.			
NAG 8-558	University of California - Davis	1922			
Study of the central components in composite supernova remnants					
	<i>Period</i>		<i>Obligations</i>		
11/01/85-11/01/87		FY88:	TOTAL: \$13,606		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Becker, R. H.		MSFC/Dorries, A. M.	11-Astronomy		
NAG 8-579	University of California - Davis	1923			
X ray images of supernova remnants					
	<i>Period</i>		<i>Obligations</i>		
04/01/86-03/30/88		FY88:	TOTAL: \$9,086		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Becker, R. H.		MSFC/Dorries, A. M.	11-Astronomy		
NAGW 903	University of California - Davis	1924			
Laser studies of the photodissociation dynamics for the formation of cometary radicals					
	<i>Period</i>		<i>Obligations</i>		
06/01/86-05/31/89		FY88: \$53,000	TOTAL: \$156,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Jackson, W. M.		HQ-EL/Fox, K.	31-Atmos Sci		
		HQ-EL/Quaide, W. L.			
NAGW 1096	University of California - Davis	1925			
Remote sensing mosquito prediction project					
	<i>Period</i>		<i>Obligations</i>		
04/01/87-12/31/87		FY88:	TOTAL: \$114,456		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Washino, R. K.		HQ-EB/Averner, M. M.	51-Biological Sci		
NAGW 1119	University of California - Davis	1926			
Role of prebiotic amphiphilic molecules in evolution of membrane structure					
	<i>Period</i>		<i>Obligations</i>		
06/01/87-06/31/89		FY88: \$69,890	TOTAL: \$111,543		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Deamer, D. W.		HQ-EB/Rummel, J. D.	12-Chemistry		
NAGW 1144	University of California - Davis	1927			
Laboratory simulation of the surface of Halley's comet					
	<i>Period</i>		<i>Obligations</i>		
07/01/87-12/01/88		FY88: \$17,000	TOTAL: \$51,699		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Jackson, W. M.		HQ-EL/Brinton, H. C.	11-Astronomy		
		HQ-EL/Rahe, J. H.			
NAS 2-12334	University of California - Davis	1928			
Thermoregulation in primates in the space environment					
	<i>Period</i>		<i>Obligations</i>		
10/01/85-09/30/88		FY88: \$200,232	TOTAL: \$588,232		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Fuller, C.		ARC/Donnelly, N. J.	51-Biological Sci		
		ARC/Schatte, C. L.			
NAS 5-28754	University of California - Davis	1929			
Application in LANDSAT images to analyze kinetics at the intersection of the Fault zones in California (integration of data and fields study)					
	<i>Period</i>		<i>Obligations</i>		
08/15/85-09/15/88		FY88:	TOTAL: \$193,404		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Finnerty, A. A.		GSFC/Useroff, H.	32-Geological Sci		
Verosub, K.					

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 8-36550	University of California - Davis	1930	Airborne Doppler lidar measurements of the central California extended sea breeze			
			<i>Period</i>	<i>Obligations</i>		
			09/20/85-01/31/88	FY88: TOTAL: \$100,000		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Carroll, J. J.	MSFC/Fitzjarrald, D. E.	39-Env Sci, NEC	
				MSFC/Bilbro, J.		
NCA 2-79	University of California - Davis	1931	Turbulence structure in a low-Reynolds-number incompressible turbulent boundary layer			
			<i>Period</i>	<i>Obligations</i>		
			09/15/85-12/31/86	FY88: TOTAL: \$10,908		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			White, B. R.	ARC/Robinson, S. K.	46-Mech Engr	
NCA 2-153	University of California - Davis	1932	Vector borne disease modeling utilizing remote sensing and related ground data			
			<i>Period</i>	<i>Obligations</i>		
			08/01/86-09/30/88	FY88: \$1,500 TOTAL: \$14,000		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Washino, R.	ARC/Sebesta, P.	54-Env Biology	
NCA 2-172	University of California - Davis	1933	Convergence acceleration methods for application to the Navier-Stokes equations			
			<i>Period</i>	<i>Obligations</i>		
			11/01/86-10/31/88	FY88: \$37,229 TOTAL: \$67,105		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Cheer, A. Y.	ARC/Flores, J.	21-Mathematics	
			Hafsz, M. M.	ARC/Pulliam, T. H.		
NCA 2-210	University of California - Davis	1934	Numerical algorithms for steady and unsteady incompressible Navier-Stokes equations			
			<i>Period</i>	<i>Obligations</i>		
			05/15/87-05/14/89	FY88: \$30,000 TOTAL: \$57,400		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Hafez, M. M.	ARC/Kwak, D.	46-Mech Engr	
NCA 2-229	University of California - Davis	1935	Measurement and modeling of the optical scattering properties of leaves and plant canopies			
			<i>Period</i>	<i>Obligations</i>		
			06/15/87-06/14/89	FY88: TOTAL: \$17,982		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Ustin, S. L.	ARC/Lawless, J. G.	54-Env Biology	
NCC 2-99	University of California - Davis	1936	Selection of crop varieties for efficient production using urea, ammonia, nitrite, and nitrate in the closed environmental life support system			
			<i>Period</i>	<i>Obligations</i>		
			10/01/80-11/30/88	FY88: \$67,000 TOTAL: \$567,774		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Huffaker, R. C.	ARC/MacElroy, R. D.	55-Agriculture Sci	
			Rains, D. W.			
			Qualset, C. O.			
NCC 2-186	University of California - Davis	1937	Reynolds-stress model for compressible flows			
			<i>Period</i>	<i>Obligations</i>		
			04/01/82-04/30/89	FY88: \$35,074 TOTAL: \$205,912		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Kollmann, W.	ARC/Rubesin, M. W.	41-Aero Engr	
			Minh, H. H.	ARC/Viegas, J. R.		
			Vandromme, D.			
NCC 2-252	University of California - Davis	1938	Numerical and experimental studies of particle flow in a high-pressure boundary layer wind tunnel			
			<i>Period</i>	<i>Obligations</i>		
			06/15/83-10/31/88	FY88: TOTAL: \$37,807		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			White, B. R.	ARC/Pollack, J. B.	32-Geological Sci	
				ARC/Smith, B. F.		
NCC 2-383	University of California - Davis	1939	Utilizing identified pilot control strategies in aircraft and rotorcraft handling qualities research			
			<i>Period</i>	<i>Obligations</i>		
			07/01/86-12/31/87	FY88: TOTAL: \$41,310		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Hess, R. A.	ARC/Chen, R.	41-Aero Engr	
NCC 2-392	University of California - Davis	1940	Analysis of nutrient element uptake by higher plants grown in sealed growth chambers			
			<i>Period</i>	<i>Obligations</i>		
			02/01/86-06/30/89	FY88: \$63,300 TOTAL: \$167,937		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Huffaker, R. C.	ARC/MacElroy, R. D.	51-Biological Sci	
			Schwartzkopf, S.			
NCC 2-469	University of California - Davis	1941	The human experience in antarctica application to life in space			
			<i>Period</i>	<i>Obligations</i>		
			04/01/87-11/30/88	FY88: TOTAL: \$12,000		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Harrison, A. A.	ARC/McKay, C. P.	51-Biological Sci	
NGT 00-050-195	University of California - Davis	1942	NASA graduate student researchers program			
			<i>Period</i>	<i>Obligations</i>		
			06/01/87-05/31/89	FY88: \$34,750 TOTAL: \$34,750		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Fuller, C. A.	HQ-XE/Owens, F. C.	51-Biological Sci	
NGT 00-070-018	University of California - Davis	1943	Graduate student researchers underrepresented minority focus program			
			<i>Period</i>	<i>Obligations</i>		
			06/01/87-05/31/89	FY88: \$18,000 TOTAL: \$36,000		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Coss, R. G.	HQ-XE/Owens, F. C.	69-Psych, NEC	
NGT 05-004-801	University of California - Davis	1944	NASA graduate student researchers program			
			<i>Period</i>	<i>Obligations</i>		
			07/01/86-09/30/88	FY88: TOTAL: \$51,350		
			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
			Bernauer, E.	HQ-LB/Owens, F. C.	51-Biological Sci	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 1-668 University of California - Irvine 1945
A large scale empirical study of error detection using self test
Period *Obligations*
04/01/86-12/31/88 FY88: \$50,000 TOTAL: \$184,813
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leveson, N. G. LARC/Eckhardt, D. E., Jr. 22-Computer Science

NAG 1-783 University of California - Irvine 1946
Trace gas analysis from the DC 8 aircraft
Period *Obligations*
06/15/87-12/31/88 FY88: \$194,000 TOTAL: \$250,937
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rowland, F. S. LARC/Hoell, J. M. 31-Atmos Sci
LARC/Drewry, J. W.

NAG 2-387 University of California - Irvine 1947
Human adaptation to isolated and confined environments
Period *Obligations*
10/01/85-07/31/87 FY88: TOTAL: \$23,318
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Evans, G. ARC/Clearwater, Y. 69-Psych, NEC
Stokels, D. ARC/Tanner, T.

NAG 2-399 University of California - Irvine 1948
Physiology of developing gravity receptors and otolith ocular reflexes in rats
Period *Obligations*
04/01/86-02/28/89 FY88: \$48,600 TOTAL: \$156,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blanks, R. H. ARC/Ross, M. D. 51-Biological Sci
ARC/Holton, E.

NAG 3-627 University of California - Irvine 1949
Ignition and flame speed above liquid fuel pools gravity effects
Period *Obligations*
03/01/85-08/01/89 FY88: \$90,000 TOTAL: \$282,757
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sirignano, W. A. LERC/Ross, H. D. 49-Engr, NEC
LERC/Sackstedgr, R.

NAG 8-585 University of California - Irvine 1950
Search for X ray emission from candidate young galactic super nova remnants
Period *Obligations*
04/01/86-09/30/87 FY88: TOTAL: \$11,986
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chanan, G. A. MSFC/Dorries, A. M. 11-Astronomy

NAGW 93 University of California - Irvine 1951
Research in solar plasma theory
Period *Obligations*
06/01/80-11/30/88 FY88: \$67,487 TOTAL: \$1,150,055
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoven, G. V. HQ-ES/Curtis, S. A. 13-Physics
Steinolfson, R. S. HQ-ES/Mellott, M. M.

NAGW 212 University of California - Irvine 1952
Models of energy transformation during the early evolution of life
Period *Obligations*
06/01/81-11/30/88 FY88: \$82,000 TOTAL: \$579,896
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lanyi, T. K. HQ-EB/Rummel, J. D. 51-Biological Sci
HQ-EB/Averner, M.

NAGW 452 University of California - Irvine 1953
Latitudinal gradients in tropospheric concentrations of selected
halocarbons and hydrocarbons
Period *Obligations*
03/15/83-03/14/89 FY88: \$159,697 TOTAL: \$865,536
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rowland, F. S. HQ-EE/Margitan, J. J. 31-Atmos Sci
HQ-EE/Watson, R. T.

NAGW 914 University of California - Irvine 1954
Ultraviolet photolysis of ions of stratospheric importance
Period *Obligations*
08/01/86-01/31/88 FY88: TOTAL: \$163,418
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rowland, F. S. HQ-EE/Kurylo, M. J. 31-Atmos Sci
HQ-EE/Margitan, J. J.

NAS 2-10522 University of California - Irvine 1955
Life science experiment ARC 781-127, effect of zero-gravity on
biochemical and metabolic properties of skeletal muscle
Period *Obligations*
01/15/80-09/30/88 FY88: \$58,586 TOTAL: \$394,030
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baldwin, K. M. ARC/Ballard, R. W. 51-Biological Sci
ARC/Leon, H. A.

NAS 2-12834 University of California - Irvine 1956
Enhancement of in space operations using spatial perception auditory
referencing
Period *Obligations*
05/23/88-05/22/89 FY88: \$135,220 TOTAL: \$135,220
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blanks, R. ARC/Wentzel, B. 41-Aero Engr

NAS 9-17767 University of California - Irvine 1957
Developing and conducting life sciences experiment e080 isometric
exercise performance under zero G conditions
Period *Obligations*
04/22/87-01/01/92 FY88: \$190,563 TOTAL: \$432,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Petrofsky, J. S. JSC/Seitz, W. W. 59-Life Sci, NEC

NCA 2-119 University of California - Irvine 1958
Radiative heating of hypersonic afterbodies
Period *Obligations*
04/01/86-02/29/88 FY88: TOTAL: \$59,974
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Edwards, D. K. ARC/Davy, W. C. 46-Mech Engr

NCA 2-353 University of California - Irvine 1959
Computational volumetric radiative transfer for ATOV's
Period *Obligations*
09/01/88-08/31/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Edwards, D. K. ARC/Davy, W. C. 46-Mech Engr

NGT 00-050-372 University of California - Irvine 1960
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sirignano, W. A. HQ-XE/Owens, F. C. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 7375 University of California - Irvine 1961
Coronal plasma structures
Period Obligations
06/01/77-10/31/88 FY88: \$70,000 TOTAL: \$623,653
Prin. Invest. NASA Tech. Officer CASE Category
Van Hoven, G. HQ-EZ/Ahluwalia, H. S. 13-Physics
HQ-EZ/Bohlin, J. D.

NAG 1-270 University of California - Los Angeles 1962
Numerical methods for compressible flow calculations
Period Obligations
05/15/82-02/28/89 FY88: \$51,227 TOTAL: \$259,184
Prin. Invest. NASA Tech. Officer CASE Category
Osher, S. J. LARC/MacAraeg, M. G. 41-Aero Engr
LARC/Kumar, A.

NAG 1-464 University of California - Los Angeles 1963
Control laws for distributed parameter systems
Period Obligations
03/15/84-09/14/88 FY88: TOTAL: \$155,582
Prin. Invest. NASA Tech. Officer CASE Category
Balakrishnan, A. V. LARC/Joshi, S. M. 45-Elec Engr
LARC/Taylor, L. W., Jr.

NAG 1-512 University of California - Los Angeles 1964
Second generation experiment in Fault tolerant software
Period Obligations
09/01/84-09/30/87 FY88: TOTAL: \$313,835
Prin. Invest. NASA Tech. Officer CASE Category
Avizienis, A. LARC/Eckhardt, D. E., Jr. 22-Computer Science
Kelly, J. P.

NAG 1-833 University of California - Los Angeles 1965
Optimal structural design and composite helicopter rotor blades with straight and swept tips
Period Obligations
11/16/87-11/15/88 FY88: \$56,572 TOTAL: \$56,572
Prin. Invest. NASA Tech. Officer CASE Category
Friedmann, P. P. LARC/Adelman, H. M. 41-Aero Engr
LARC/Pritchard, J. I.

NAG 2-209 University of California - Los Angeles 1966
Unsteady aerodynamics for finite-time arbitrary motion of rotor blades in frequency and time domain
Period Obligations
09/01/82-09/30/88 FY88: TOTAL: \$229,248
Prin. Invest. NASA Tech. Officer CASE Category
Friedmann, P. P. ARC/Warmbrodt, W. 41-Aero Engr
ARC/Jacklin, S.

NAG 2-226 University of California - Los Angeles 1967
Optimal design of rotor blade for vibration reduction in forward flight
Period Obligations
03/01/83-06/30/88 FY88: \$976 TOTAL: \$131,876
Prin. Invest. NASA Tech. Officer CASE Category
Friedmann, P. P. ARC/Miura, H. 41-Aero Engr
ARC/Gelhausen, P. A.

NAG 2-302 University of California - Los Angeles 1968
AI-based real-time support for high performance aircraft operations
Period Obligations
05/15/84-09/30/88 FY88: \$31,701 TOTAL: \$206,701
Prin. Invest. NASA Tech. Officer CASE Category
Vidal, J. J. ARC/Duke, E. L. 41-Aero Engr
Pearl, J. ARC/Petersen, K. L.

NAG 2-303 University of California - Los Angeles 1969
Survey and analysis of x band radar for flight research in the western aeronautical test range
Period Obligations
07/01/84-06/30/88 FY88: TOTAL: \$223,663
Prin. Invest. NASA Tech. Officer CASE Category
Yao, K. ARC/Anderson, K. F. 29-Math/Computer, NEC
Balakrishnan, A. V. ARC/Moore, A. L.

NAG 2-304 University of California - Los Angeles 1970
A survey of the state of the art and focused research in range systems
Period Obligations
06/15/84-06/14/88 FY88: TOTAL: \$285,000
Prin. Invest. NASA Tech. Officer CASE Category
Omura, J. K. ARC/Anderson, K. F. 29-Math/Computer, NEC
Yao, K.
Baker, R. L.

NAG 2-313 University of California - Los Angeles 1971
SIRTF pre-definition phase analyses
Period Obligations
07/01/84-10/31/88 FY88: \$26,954 TOTAL: \$89,019
Prin. Invest. NASA Tech. Officer CASE Category
Jura, M. A. ARC/Ramos, R. 11-Astronomy
ARC/Hing, S. M.

NAG 2-315 University of California - Los Angeles 1972
A SIRTF interdisciplinary scientist proposal for pre-definition phase
Period Obligations
07/01/84-10/31/88 FY88: \$24,704 TOTAL: \$118,069
Prin. Invest. NASA Tech. Officer CASE Category
Wright, E. L. ARC/Ramos, R. 11-Astronomy
ARC/Leidich, C. A.

NAG 2-360 University of California - Los Angeles 1973
Research in analog MOS integrated circuits
Period Obligations
07/01/85-06/30/88 FY88: TOTAL: \$102,644
Prin. Invest. NASA Tech. Officer CASE Category
Temes, G. C. ARC/Bogue, R. K. 46-Mech Engr
ARC/Illiff, K. W.

NAG 2-367 University of California - Los Angeles 1974
Discrete event control and communications systems
Period Obligations
09/01/85-08/31/88 FY88: TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Balakrishnan, A. V. ARC/Anderson, K. F. 29-Math/Computer, NEC
Kleinrock, L. ARC/Moore, A. L.

NAG 2-433 University of California - Los Angeles 1975
Efficient load measurements using singular value decomposition technique
Period Obligations
01/01/87-03/31/88 FY88: TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Yao, K. ARC/Anderson, K. F. 29-Math/Computer, NEC
Balakrishnan, A. V. ARC/Schuster, L. S.

NAG 2-441 University of California - Los Angeles 1976
Ubsystem models
Period Obligations
07/01/87-06/30/88 FY88: \$12,000 TOTAL: \$64,500
Prin. Invest. NASA Tech. Officer CASE Category
Levan, N. ARC/Duke, E. L. 41-Aero Engr
Balakrishnan, A. V. ARC/Illiff, K. W.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 2-450 University of California - Los Angeles 1977

Validation of muscle volume determinations by magnetic resonance imaging

<i>Period</i>	<i>Obligations</i>	
04/01/87-03/31/89	FY88: \$124,650	TOTAL: \$183,650
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Edgerton, V. R.	ARC/Grindeland, R. E.	56-Medical Sciences
Martin, T. P.		
Roy, R. R.		

NAG 3-451 University of California - Los Angeles 1985

Thin film temperature sensor

<i>Period</i>	<i>Obligations</i>	
08/01/83-12/27/88	FY88: \$75,000	TOTAL: \$467,038
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bunshah, R. F.	LERC/Holanda, R.	47-Materials Engr
	LERC/Williams, W. D.	

NAG 2-464 University of California - Los Angeles 1978

Utilization of FEP energetics

<i>Period</i>	<i>Obligations</i>	
07/01/87-12/31/87	FY88:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frederking, T. H.	ARC/Lee, J. M.	13-Physics
	ARC/Kittel, P.	

NAG 3-685 University of California - Los Angeles 1986

Microstructural studies of improved silicon nitride for advanced heat engines

<i>Period</i>	<i>Obligations</i>	
12/28/85-12/26/87	FY88:	TOTAL: \$40,448
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Todd, J. A.	LERC/Freedman, M. R.	47-Materials Engr

NAG 2-477 University of California - Los Angeles 1979

Aeromechanical problems with active controls

<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/89	FY88: \$123,752	TOTAL: \$123,752
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Friedmann, P.	ARC/Jacklin, S. A.	41-Aero Engr

NAG 3-899 University of California - Los Angeles 1987

Dynamic behavior of heat pipes

<i>Period</i>	<i>Obligations</i>	
04/20/88-10/20/88	FY88: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Catton, I.	LERC/Baker, K. W.	46-Mech Engr
	LERC/Juhasz, A. J.	

NAG 2-479 University of California - Los Angeles 1980

Soft dense fibrous connective tissue response to hind limb suspension

<i>Period</i>	<i>Obligations</i>	
08/01/87-10/31/88	FY88: \$87,400	TOTAL: \$87,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vailas, A. C.	ARC/Grindeland, R. E.	56-Medical Sciences
Zernicke, R. F.		

NAG 5-152 University of California - Los Angeles 1988

Thermal isotacy in the world's oceans

<i>Period</i>	<i>Obligations</i>	
04/01/81-04/30/89	FY88: \$97,463	TOTAL: \$379,951
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	GSFC/Welker, J.	32-Geological Sci

NAG 2-485 University of California - Los Angeles 1981

Data analysis for the Pioneer Venus electric field detector

<i>Period</i>	<i>Obligations</i>	
10/01/87-03/31/89	FY88: \$117,000	TOTAL: \$117,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scarf, F.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Craig, R. A.	

NAG 5-447 University of California - Los Angeles 1989

Tectonic deformation in California

<i>Period</i>	<i>Obligations</i>	
07/15/84-02/30/89	FY88: \$66,026	TOTAL: \$269,876
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jackson, D. D.	GSFC/Frey, H. V.	32-Geological Sci

NAG 2-496 University of California - Los Angeles 1982

Far infrared polarimetry and high resolution photometry of the galactic center arc

<i>Period</i>	<i>Obligations</i>	
02/01/88-01/31/89	FY88: \$21,250	TOTAL: \$21,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morris, M.	ARC/Haughney, L. C.	11-Astronomy

NAG 5-488 University of California - Los Angeles 1990

A theoretical investigation of auroral dynamics

<i>Period</i>	<i>Obligations</i>	
03/01/85-02/28/89	FY88: \$34,002	TOTAL: \$347,847
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maggs, J. E.	GSFC/Bullock, G. D.	19-Phys Sci, NEC
	GSFC/Hoffman, R. A.	

NAG 2-501 University of California - Los Angeles 1983

Analysis of magnetic field data from the Pioneer Venus orbiter

<i>Period</i>	<i>Obligations</i>	
10/01/87-10/31/88	FY88: \$400,000	TOTAL: \$400,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, C.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Craig, R. A.	

NAG 5-536 University of California - Los Angeles 1991

Magnetospheric studies using the United Kingdom satellite data

<i>Period</i>	<i>Obligations</i>	
05/15/85-08/14/88	FY88:	TOTAL: \$110,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, C. T.	GSFC/Curtis, S. A.	13-Physics
Walker, R. J.	GSFC/Ousley, G. W.	
Kivelson, M. G.		

NAG 2-516 University of California - Los Angeles 1984

Mechano caloric cooling device

<i>Period</i>	<i>Obligations</i>	
05/15/88 05/14/89	FY88: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frederking, T. H.	ARC/Lee, J. M.	13-Physics
	ARC/Kittel, P.	

NAG 5-575 University of California - Los Angeles 1992

Coordinated ultraviolet optical infrared observations of quasars

<i>Period</i>	<i>Obligations</i>	
07/01/85-07/31/89	FY88: \$21,300	TOTAL: \$177,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Malikan, M. A.	GSFC/Kondo, Y.	11-Astronomy
Sun, W. H.		

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 5-713 University of California - Los Angeles 1993
 Estimation theory satellite data assimilation and atmospheric predictability

<i>Period</i>	<i>Obligations</i>	
09/15/85-12/31/88	FY88: \$166,999	TOTAL: \$441,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ghil, M.	GSFC/Atlas, R.	31-Atmos Sci

NAG 8-74 University of California - Los Angeles 2001
 Analytic and simulation studies of the acceleration of heavy ions

<i>Period</i>	<i>Obligations</i>	
08/26/86-06/19/89	FY88: \$43,093	TOTAL: \$121,922
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Abdella, M. A.	MSFC/Chappell, C. R.	31-Atmos Sci
Kropoff, L.	MSFC/Fields, S. A.	

NAG 5-789 University of California - Los Angeles 1994
 Numerical modeling of the global atmosphere

<i>Period</i>	<i>Obligations</i>	
06/01/86-12/31/88	FY88: \$127,000	TOTAL: \$296,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arakawa, A.	GSFC/Suarez, M.	31-Atmos Sci

NAG 9-27 University of California - Los Angeles 2002
 Isotopic analysis of light elements in extraterrestrial materials

<i>Period</i>	<i>Obligations</i>	
02/01/83-02/01/89	FY88: \$60,165	TOTAL: \$314,011
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kerridge, J. F.	JSC/Browne, I. D.	12-Chemistry
Kaplan, I. R.		

NAG 5-863 University of California - Los Angeles 1995
 Data analysis of the charged composition Explorer plasma wave experiment

<i>Period</i>	<i>Obligations</i>	
11/15/86-11/14/88	FY88: \$24,597	TOTAL: \$119,598
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strongway, R. J.	GSFC/Curtis, S. A.	13-Physics
	GSFC/Acuna, M. H.	

NAG 9-40 University of California - Los Angeles 2003
 Geochemical studies of lunar materials

<i>Period</i>	<i>Obligations</i>	
02/01/83-02/01/89	FY88: \$139,400	TOTAL: \$885,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wasson, J. T.	JSC/Browne, I. D.	32-Geological Sci
Grossman, J. M.		
Rubin, A. E.		

NAG 5-947 University of California - Los Angeles 1996
 On time continuous assimilation of meteorological satellite data with special scatterometer applications

<i>Period</i>	<i>Obligations</i>	
07/15/87-07/14/88	FY88:	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ghil, M.	GSFC/Atlas, R. M.	31-Atmos Sci

NAG 9-87 University of California - Los Angeles 2004
 Pristine lunar rocks and the genesis of early planetary crusts

<i>Period</i>	<i>Obligations</i>	
05/01/85-02/01/89	FY88: \$97,500	TOTAL: \$425,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Warren, P. H.	JSC/Browne, I. D.	19-Phys Sci, NEC
Warren, P. H.		
Kallemeyn, G. W.		

NAG 5-1040 University of California - Los Angeles 1997
 Satellite gradiometer studies and three dimensional modeling of small scale convection beneath the oceanic lithosphere

<i>Period</i>	<i>Obligations</i>	
03/15/88-03/14/89	FY88: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaula, W.	GSFC/Welker, J. E.	32-Geological Sci

NAG 9-96 University of California - Los Angeles 2005
 Primordial planetary differentiation and its after effects

<i>Period</i>	<i>Obligations</i>	
03/01/85-03/01/89	FY88: \$29,000	TOTAL: \$105,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wasson, J. T.	JSC/Phinney, W. C.	32-Geological Sci
Warren, P. H.		

NAG 5-1063 University of California - Los Angeles 1998
 Temperatures of planetary nebulae nuclei

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$20,800	TOTAL: \$20,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Aller, L.	GSFC/Kondo, Y.	11-Astronomy

NAG 9-179 University of California - Los Angeles 2006
 Preflight postflight measurement of dynamic ocular counterrolling

<i>Period</i>	<i>Obligations</i>	
09/01/86-03/01/89	FY88: \$42,389	TOTAL: \$81,075
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Markham, C. H.	JSC/Kutyna, F. A.	56-Medical Sciences

NAG 5-1067 University of California - Los Angeles 1999
 Analysis of the ISEE magnetometer experiment data

<i>Period</i>	<i>Obligations</i>	
08/01/88-12/31/88	FY88: \$127,800	TOTAL: \$127,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, C. T.	GSFC/Wales, R. O.	19-Phys Sci, NEC

NAGW 78 University of California - Los Angeles 2007
 Space plasma physics theory and simulation

<i>Period</i>	<i>Obligations</i>	
07/01/80-11/30/88	FY88: \$225,000	TOTAL: \$1,941,033
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Abdulla, M. A.	HQ-EE/Butler, D. M.	39-Env Sci, NEC
	GSFC/Curtis, S. A.	

NAG 5-1085 University of California - Los Angeles 2000
 Close companion selected rotating carbon star

<i>Period</i>	<i>Obligations</i>	
10/01/88-09/30/89	FY88: \$3,500	TOTAL: \$3,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jura, M.	GSFC/Kondo, Y.	11-Astronomy

NAGW 80 University of California - Los Angeles 2008
 Theoretical studies of extragalactic grains

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/88	FY88: \$33,000	TOTAL: \$248,023
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jura, M. A.	HQ-EZ/Stachnik, R. V.	11-Astronomy
	HQ-EZ/Bogges, N. W.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 87 University of California - Los Angeles 2009
Theoretical studies of the plasma environments of Jupiter and Saturn, their magnetospheres and their satellites
Period *Obligations*
07/01/80-11/30/88 FY88: \$43,000 TOTAL: \$407,183
Prin. Invest. NASA Tech. Officer CASE Category
Siscoe, G. L. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 825 University of California - Los Angeles 2016
Paleobiology of the proterozoic
Period *Obligations*
12/15/85-12/14/88 FY88: \$73,064 TOTAL: \$203,320
Prin. Invest. NASA Tech. Officer CASE Category
Schopf, J. W. HQ-EB/Rummel, J. D. 32-Geological Sci
Hayes, J. M. HQ-EB/Averner, M.
Gest, H.

NAGW 104 University of California - Los Angeles 2010
High-pressure cosmochemistry applied to major planetary interiors: Experimental studies
Period *Obligations*
11/01/80-12/31/88 FY88: \$35,000 TOTAL: \$431,551
Prin. Invest. NASA Tech. Officer CASE Category
Nicol, M. F. HQ-EL/Scott, D. H. 11-Astronomy
HQ-EL/Boyce, J. M.

NAGW 886 University of California - Los Angeles 2017
General circulation of the Southern Hemisphere stratosphere
Period *Obligations*
04/01/86-08/31/87 FY88: TOTAL: \$46,633
Prin. Invest. NASA Tech. Officer CASE Category
Mechoso, C. R. HQ-EE/Smith, M. A. 31-Atmos Sci
HQ-EE/Butler, D. M.

NAGW 347 University of California - Los Angeles 2011
Isotopic characteristics of prebintic synthesis of organic matter
Period *Obligations*
07/01/82-12/31/88 FY88: \$61,194 TOTAL: \$323,466
Prin. Invest. NASA Tech. Officer CASE Category
Kerridge, J. F. HQ-EB/Rummel, J. D. 12-Chemistry
HQ-EB/Souner, M.

NAGW 968 University of California - Los Angeles 2018
Phobos CO investigator support
Period *Obligations*
08/01/86-07/31/89 FY88: \$49,915 TOTAL: \$95,993
Prin. Invest. NASA Tech. Officer CASE Category
Scarf, F. L. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 995 University of California - Los Angeles 2019
Theoretical studies and supporting research in magnetospheric physics
Period *Obligations*
11/01/86-04/30/89 FY88: \$163,390 TOTAL: \$323,390
Prin. Invest. NASA Tech. Officer CASE Category
Scarf, F. L. HQ-EE/Theis, R. F. 13-Physics
HQ-EE/Eastman, T. E.

NAGW 472 University of California - Los Angeles 2012
Theoretical studies in lyport of a solar seismology mission
Period *Obligations*
06/01/83-10/31/88 FY88: \$144,000 TOTAL: \$564,168
Prin. Invest. NASA Tech. Officer CASE Category
Ulrich, R. HQ-ES/Ahluwalia, H. S. 13-Physics
HQ-EZ/Spicer, D. S.

NAGW 1021 University of California - Los Angeles 2020
General circulation of the Southern Hemisphere stratosphere
Period *Obligations*
05/01/87-10/14/89 FY88: \$39,000 TOTAL: \$93,703
Prin. Invest. NASA Tech. Officer CASE Category
Mechoso, C. R. HQ-EE/Miller, T. L. 31-Atmos Sci
HQ-EE/Prather, M. J.

NAGW 692 University of California - Los Angeles 2013
Pioneer Venus data analysis and guest investigator program
Period *Obligations*
01/01/85-12/31/87 FY88: TOTAL: \$106,093
Prin. Invest. NASA Tech. Officer CASE Category
Luhmann, J. G. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1044 University of California - Los Angeles 2021
Global meteorological research with scatterometer wind data
Period *Obligations*
04/15/87-04/14/88 FY88: TOTAL: \$70,000
Prin. Invest. NASA Tech. Officer CASE Category
Wurtele, M. G. HQ-EE/Curran, R. J. 31-Atmos Sci
HQ-EE/Theon, J. S.

NAGW 717 University of California - Los Angeles 2014
Investigation of interplanetary flux enhancement 3 and their possible association with outgassing small bodies in the inner solar system
Period *Obligations*
04/01/85-03/31/89 FY88: \$64,000 TOTAL: \$247,000
Prin. Invest. NASA Tech. Officer CASE Category
Russell, C. T. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1065 University of California - Los Angeles 2022
A search for subsurface ice on Mars using Viking thermal mapper data
Period *Obligations*
04/15/87-04/14/88 FY88: TOTAL: \$30,564
Prin. Invest. NASA Tech. Officer CASE Category
Paige, D. A. HQ-EL/Scott, D. H. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 774 University of California - Los Angeles 2015
Vertical propagation of gravity wave energy and its interaction with the mean flow in the middle atmosphere
Period *Obligations*
06/01/85-06/30/88 FY88: TOTAL: \$176,397
Prin. Invest. NASA Tech. Officer CASE Category
Wurtele, M. G. HQ-EE/Jackman, C. H. 31-Atmos Sci
HQ-EE/Butler, D. M.

NAGW 1134 University of California - Los Angeles 2023
Travel support for third international school of space simulation
Period *Obligations*
06/01/87-11/30/87 FY88: TOTAL: \$21,984
Prin. Invest. NASA Tech. Officer CASE Category
Ashour Abdalla H, M. HQ-EE/Eastman, T. E. 19-Phys Sci, NEC
HQ-EE/Vinas, A. F.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 1179 University of California - Los Angeles 2024

A magnetotail model of Uranus and an investigation of spacecraft charging

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, R. J.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EE/Parks, G.	

NAS 2-12383 University of California - Los Angeles 2032

Analysis of Pioneer Venus orbiter magnetic field data

<i>Period</i>	<i>Obligations</i>	
10/01/85-09/30/87	FY88:	TOTAL: \$859,037
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, C. T.	ARC/Craig, R. A.	11-Astronomy
	ARC/Fimmell, R. O.	

NAGW 1189 University of California - Los Angeles 2025

Analysis of plasma data from the Uranus encounter

<i>Period</i>	<i>Obligations</i>	
09/15/87-09/14/88	FY88:	TOTAL: \$101,457
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Siscoe, G. L.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EE/Parks, G.	

NAS 5-25657 University of California - Los Angeles 2033

Space telescope/high resolution spectrograph interstellar medium studies

<i>Period</i>	<i>Obligations</i>	
04/25/79-01/31/87	FY88:	TOTAL: \$23,541
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jura, M. A.	GSFC/Vitagliano, H. D.	11-Astronomy

NAGW 1190 University of California - Los Angeles 2026

The interaction of the solar wind with Uranus

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/31/88	FY88:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, C. T.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Slavin, J. A.	

NAS 5-26846 University of California - Los Angeles 2034

Magnetic field investigation for the polar plasma laboratory of the origin of plasmas in the Earth's neighborhood mission

<i>Period</i>	<i>Obligations</i>	
06/11/82-12/31/88	FY88: \$390,004	TOTAL: \$518,925
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, C. T.	GSFC/WeinScott, F. H.	19-Phys Sci, NEC

NAGW 1220 University of California - Los Angeles 2027

Emission cone modeling of uranian kilometric radiation

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/88	FY88:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barbosa, D. D.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Slavin, J. A.	

NAS 5-26852 University of California - Los Angeles 2035

A magnetic field investigation for the equatorial magnetospheric laboratory

<i>Period</i>	<i>Obligations</i>	
06/11/82-06/30/88	FY88:	TOTAL: \$124,792
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McPherron, R. L.	GSFC/O'Brien, J. J.	13-Physics

NAGW 1227 University of California - Los Angeles 2028

A kinetic study of solar wind coma interaction

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$38,488	TOTAL: \$38,488
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Omid, N.	HQ-EE/Theis, R. F.	13-Physics
	HQ-EE/Eastman, T. E.	

NAS 5-26871 University of California - Los Angeles 2036

Development of theoretical technology for origin of plasmas in the Earth's neighborhood (OPEN)

<i>Period</i>	<i>Obligations</i>	
05/03/82-06/30/88	FY88:	TOTAL: \$81,722
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ashour-Abdalla, G. M.	GSFC/O'Brien, J. J.	13-Physics

NAGW 1347 University of California - Los Angeles 2029

Aeronomical peculiarities of the unmagnetized planets related to the solar wind interaction: Inferences for Mars from Venus

<i>Period</i>	<i>Obligations</i>	
06/01/88-05/31/89	FY88: \$58,331	TOTAL: \$58,331
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Luhmann, J. G.	HQ-EL/Fox, K.	13-Physics
	HQ-EL/Quaide, W. L.	

NAS 5-27670 University of California - Los Angeles 2037

Data analysis studies and algorithm development for the COBE satellite

<i>Period</i>	<i>Obligations</i>	
06/28/83-05/31/91	FY88: \$60,000	TOTAL: \$335,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wright, E. L.	GSFC/Mather, J. C.	11-Astronomy

NAGW 1379 University of California - Los Angeles 2030

Participation in the Phobos mission studies of the Mars solar wind interaction

<i>Period</i>	<i>Obligations</i>	
07/01/88-06/30/89	FY88: \$20,900	TOTAL: \$20,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Luhmann, J. G.	HQ-EL/Brinton, H. C.	13-Physics

NAS 5-28448 University of California - Los Angeles 2038

Data reduction and analysis for the ISEE 1 and 2 spacecraft's magnetometer experiment

<i>Period</i>	<i>Obligations</i>	
10/01/84-09/30/88	FY88: \$87,000	TOTAL: \$1,601,361
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, C. T.	GSFC/Wales, R. O.	31-Atmos Sci

NAG10-52 University of California - Los Angeles 2031

A porous growth system

<i>Period</i>	<i>Obligations</i>	
10/01/88-09/30/89	FY88: \$67,278	TOTAL: \$67,278
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berry, W. L.	KSC/Knott, W. M.	55-Agriculture Sci

NAS 5-29363 University of California - Los Angeles 2039

High resolution spectrograph guaranteed time observations

<i>Period</i>	<i>Obligations</i>	
12/12/86-09/30/91	FY88: \$27,000	TOTAL: \$64,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jura, M.	GSFC/Vitagliano, H. D.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 8-37750 University of California - Los Angeles 2040
Risk-based fire safety definitions

<i>Period</i>	<i>Obligations</i>	
08/29/88-08/30/89	FY88: \$105,674	TOTAL: \$105,674
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Apostolakis, G. E.	MSFC/Austin, J. G.	42-Astro Engr

NCA 2-390501 University of California - Los Angeles 2048
Connective tissue response to hind limb suspension in rats

<i>Period</i>	<i>Obligations</i>	
10/01/84-03/31/87	FY88:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vailas, A. C.	ARC/Grindeland, R. E.	51-Biological Sci
Edgerton, V. R.		
Roy, R. R.		

NCA 2-33 University of California - Los Angeles 2041
Elemental abundances and stable isotopes in stromatolites

<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/87	FY88:	TOTAL: \$54,141
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schopf, J. W.	ARC/Des Marais, D. J.	19-Phys Sci, NEC

NCC 2-374 University of California - Los Angeles 2049
Laboratory for flight-systems research

<i>Period</i>	<i>Obligations</i>	
07/01/85-10/31/88	FY88: \$463,252	TOTAL: \$568,251
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Balakrishnan, A. V.	ARC/Iliff, K. W.	49-Engr, NEC

NCA 2-118 University of California - Los Angeles 2042
Effects of surface topography on motions in the Venus atmosphere

<i>Period</i>	<i>Obligations</i>	
05/01/86-04/30/88	FY88:	TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	ARC/Young, R. E.	19-Phys Sci, NEC

NCC 2-535 University of California - Los Angeles 2050
Muscle feasibility for rhesus

<i>Period</i>	<i>Obligations</i>	
05/01/88-10/31/88	FY88: \$45,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Edgerton, V. R.	ARC/Ballard, R. W.	51-Biological Sci
Roy, R. R.	ARC/Winget, C. M.	
Hodgson, J. H.		

NCA 2-180 University of California - Los Angeles 2043
Axisymmetric model for the Orion nebula

<i>Period</i>	<i>Obligations</i>	
11/01/86-10/31/88	FY88: \$39,999	TOTAL: \$79,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zuckerman, B.	ARC/Erickson, E.	11-Astronomy

NGL 05-007-002 University of California - Los Angeles 2051
Theoretical evaluation of the internal structures and atmospheres of planets and the Moon

<i>Period</i>	<i>Obligations</i>	
01/01/62-12/31/88	FY88: \$35,000	TOTAL: \$1,271,725
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaula, W. M.	HQ-EL/Underwood, J.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NCA 2-217 University of California - Los Angeles 2044
Far infrared polarimetry and high resolution mapping of the galactic center region

<i>Period</i>	<i>Obligations</i>	
05/07/87-05/06/88	FY88:	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morris, M. R.	ARC/Werner, M.	11-Astronomy
	ARC/Pendleton, Y.	

NGL 05-007-004 University of California - Los Angeles 2052
Theoretical and experimental investigations of particles and fields in space, including construction of prototype instrumentation

<i>Period</i>	<i>Obligations</i>	
03/01/62-09/30/88	FY88: \$423,000	TOTAL: \$4,977,304
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coleman, P. J.	HQ-ES/Desch, M. D.	39-Env Sci, NEC
Woods, N.	HQ-EE/Eastman, T. E.	

NCA 2-246 University of California - Los Angeles 2045
Jovian atmospheric structure

<i>Period</i>	<i>Obligations</i>	
09/01/87-12/31/88	FY88:	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	ARC/Young, R. E.	11-Astronomy

NGL 05-007-190 University of California - Los Angeles 2053
Theoretical space plasma physics

<i>Period</i>	<i>Obligations</i>	
06/27/68-10/31/88	FY88: \$257,743	TOTAL: \$1,898,688
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HQ-ES/Desch, M. D.	19-Phys Sci, NEC
	HQ-EE/Eastman, T. E.	

NCA 2-268 University of California - Los Angeles 2046
Recording of muscle forces and electromyographic signals in vivo from rat hindlimb muscles

<i>Period</i>	<i>Obligations</i>	
09/01/87-11/30/88	FY88: \$22,300	TOTAL: \$22,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roy, R. R.	ARC/Grindeland, R. E.	51-Biological Sci
Edgerton, V. R.		

NGR 05-007-221 University of California - Los Angeles 2054
Nature and changes of organic matter in deep ocean cores

<i>Period</i>	<i>Obligations</i>	
08/08/69-12/31/86	FY88:	TOTAL: \$1,131,793
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	HQ-EB/Devincenzi, D. L.	32-Geological Sci
	HQ-EB/Averner, M.	

NCA 2-305 University of California - Los Angeles 2047
Ozone hole analysis and simulation

<i>Period</i>	<i>Obligations</i>	
04/15/88-12/31/88	FY88: \$23,800	TOTAL: \$23,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Siscoe, G. L.	ARC/Toon, O. B.	12-Chemistry

NGR 05-007-407 University of California - Los Angeles 2055
Paleobiologic studies of the antiquity and Precambrian evolution of life

<i>Period</i>	<i>Obligations</i>	
04/10/73-12/31/88	FY88: \$65,320	TOTAL: \$689,680
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schopf, J. W.	HQ-EB/Rummel, J. D.	32-Geological Sci
	HQ-EB/Averner, M.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGT 00-050-228 University of California - Los Angeles 2056
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/87-06/30/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bird, P.	HQ-XE/Owens, F. C.	19-Phys Sci, NEC

NGT 00-050-247 University of California - Los Angeles 2057
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/89	FY88: \$35,967	TOTAL: \$35,967
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stenzel, R. L.	HQ-XE/Owens, F. C.	13-Physics

NGT 00-070-025 University of California - Los Angeles 2058
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
07/01/87-06/30/89	FY88: \$2,500	TOTAL: \$20,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grindeland, R.	HQ-XE/Owens, F. C.	19-Phys Sci, NEC

NGT 00-070-039 University of California - Los Angeles 2059
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
07/01/87-06/30/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Malkan, M.	HQ-XE/Owens, F. C.	11-Astronomy

NGT 00-070-045 University of California - Los Angeles 2060
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lovan, N.	HQ-XE/Owens, F. C.	45-Elec Engr

NGT 05-006-800 University of California - Los Angeles 2061
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/88	FY88:	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wong, A. Y.	HQ-LE/Owens, F. C.	13-Physics

NGT 05-006-801 University of California - Los Angeles 2062
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/85-06/30/88	FY88: \$18,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nicol, M. F.	HQ-LE/Owens, F. C.	12-Chemistry

NSG 1490 University of California - Los Angeles 2063
Fundamental studies of methods for structural synthesis

<i>Period</i>	<i>Obligations</i>	
02/01/80-09/30/90	FY88: \$120,000	TOTAL: \$1,146,899
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schmit, L. A., Jr.	LARC/Sobieski, J.	49-Engr, NEC
Flury, C.		

NSG 2290 University of California - Los Angeles 2064
Research program in jet/surface interactions

<i>Period</i>	<i>Obligations</i>	
11/01/77-09/30/88	FY88:	TOTAL: \$250,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meecham, W. C.	ARC/Soderman, P.	41-Aero Engr

NSG 4015 University of California - Los Angeles 2065
Modelling, identification and control with applications to flight vehicles

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/90	FY88:	TOTAL: \$634,391
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Balakrishnan, A. V.	ARC/Iiliff, K. W.	41-Aero Engr

NSG 5272 University of California - Los Angeles 2066
Problems of mass loss and mass transfer in close binary systems

<i>Period</i>	<i>Obligations</i>	
05/01/78-07/31/89	FY88: \$43,300	TOTAL: \$246,566
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Plavec, M. J.	GSFC/Kondo, Y.	11-Astronomy
Keyes, C. D.		

NSG 5358 University of California - Los Angeles 2067
Ultraviolet observations of high excitation planetary nebulae

<i>Period</i>	<i>Obligations</i>	
05/09/79-07/14/87	FY88:	TOTAL: \$106,291
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Aller, L. H.	GSFC/Kondo, Y.	11-Astronomy
Feibelman, W. A.		
Maran, S. P.		

NSG 7164 University of California - Los Angeles 2068
Dynamical studies of the Venus atmosphere

<i>Period</i>	<i>Obligations</i>	
09/01/75-10/31/88	FY88: \$45,400	TOTAL: \$428,806
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	HQ-EL/Fox, K.	31-Atmos Sci
	HQ-EL/Quaide, W. L.	

NSG 7295 University of California - Los Angeles 2069
Analysis of data from the helium vector magnetometers on the Pioneers 10 and 11 spacecraft

<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/87	FY88:	TOTAL: \$890,825
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coleman, P. J.	HQ-EL/Brinton, H. C.	31-Atmos Sci
Walker, R. J.	HQ-EL/Quaide, W. L.	

NSG 7315 University of California - Los Angeles 2070
Theoretical studies of Moon plasma interactions

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/89	FY88: \$38,000	TOTAL: \$398,502
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NSG 7341 University of California - Los Angeles 2071
No cost extension

<i>Period</i>	<i>Obligations</i>	
04/01/77-05/31/87	FY88:	TOTAL: \$379,104
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Jones, W. V.	

NAGW 709 University of California - Riverside 2072
Solar wind plasma interaction with the Earth, Venus and comet Halley: A laboratory model

<i>Period</i>	<i>Obligations</i>	
02/01/85-07/31/88	FY88: \$52,000	TOTAL: \$154,456
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
White, R. S.	HQ-EL/Fox, K.	11-Astronomy
	HQ-EL/Quaide, W. L.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGR 05-008-022 University of California - Riverside 2073
Measurement of neutrons from Sun
Period *Obligations*
05/16/69-11/30/88 FY88: \$292,587 TOTAL: \$2,328,585
Prin. Invest. *NASA Tech. Officer* *CASE Category*
White, R. S. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
Zych, A. D. HQ-EZ/Bunner, A. N.

NAG 3-925 University of California - San Diego 2081
Flame propagation and extinction for clouds of fuel particulates
Period *Obligations*
10/15/88-10/15/89 FY88: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Berlad, A. L. LERC/Ross, H. D. 46-Mech Engr

NGT 00-050-156 University of California - Riverside 2074
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$10,809 TOTAL: \$27,899
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scott, G. W. HQ-XE/Owens, F. C. 12-Chemistry

NAG 5-236 University of California - San Diego 2082
Effects of global tropical weather satellite data on planetary waves
Period *Obligations*
05/15/82-11/30/88 FY88: \$95,000 TOTAL: \$463,713
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Somerville, R. C. GSFC/Suarez, M. 31-Atmos Sci
Roads, J.

NAG 1-823 University of California - San Diego 2075
Design of catalytic monoliths for closed cycle carbon dioxide lasers
Period *Obligations*
11/01/87-10/31/88 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herz, R. K. LARC/Schryer, D. R. 43-Chem Engr
LARC/Rose, L. J.

NAG 5-320 University of California - San Diego 2083
Development of a method for accurately tying sea surface positions to a deep sea floor reference point
Period *Obligations*
05/15/83-11/14/86 FY88: TOTAL: \$88,301
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spiess, F. N. GSFC/Welker, J. E. 32-Geological Sci

NAG 1-889 University of California - San Diego 2076
Investigation of the surface radiation budget from satellite observations
Period *Obligations*
06/01/88-05/31/89 FY88: \$34,034 TOTAL: \$34,034
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gautier, C. LARC/Whitlock, C. H. 31-Atmos Sci
LARC/Suttles, J. T.

NAG 5-530 University of California - San Diego 2084
Relative and gamma-ray spectrometer X ray spectrometric development
Period *Obligations*
04/01/85-11/30/88 FY88: TOTAL: \$125,698
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arnold, J. GSFC/Trombka, J. I. 11-Astronomy
GSFC/Schmadebeck, R. L.

NAG 1-900 University of California - San Diego 2077
Modeling of carbon monoxide oxidation kinetics over NASA carbon dioxide laser catalysts
Period *Obligations*
07/15/88-02/14/89 FY88: \$23,500 TOTAL: \$23,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herz, R. K. LARC/Schryer, D. R. 43-Chem Engr
LARC/Hess, R. V.

NAG 5-818 University of California - San Diego 2085
Contributions from geomagnetic inverse theory to the study of hydromagnetic conditions near the core mantle boundary
Period *Obligations*
08/01/86-07/31/89 FY88: \$37,509 TOTAL: \$104,929
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Backus, G. E. GSFC/Langel, R. A. 32-Geological Sci

NAG 2-153 University of California - San Diego 2078
Pioneer 10 and 11 data analysis
Period *Obligations*
01/01/82-02/28/89 FY88: \$170,005 TOTAL: \$874,829
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fillius, W. ARC/Fimmel, R. O. 19-Phys Sci, NEC
ARC/Phillips, J. R.

NAG 5-837 University of California - San Diego 2086
Ultraviolet and optical spectrography of selected Seyfert galaxies
Period *Obligations*
08/15/86-08/14/87 FY88: \$25 TOTAL: \$3,516
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Puetter, R. C. GSFC/Kondo, Y. 11-Astronomy
Cohen, R.
Rudy, R.

NAG 2-506 University of California - San Diego 2079
Evaluation of ADA technology
Period *Obligations*
03/01/88-11/30/88 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turcotte, D. L. ARC/Goforth, A. 29-Math/Computer, NEC
Collard, P. E. ARC/Lum, H.

NAG 5-883 University of California - San Diego 2087
Constructing core fields consistent with geosynthetic data and geophysical constraints
Period *Obligations*
06/15/87-08/14/89 FY88: \$70,157 TOTAL: \$137,210
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Backus, G. GSFC/Langel, R. 32-Geological Sci
Parker, R. L.
Stark, P. B.

NAG 3-654 University of California - San Diego 2080
Effect of gravity on premixed turbulence flames
Period *Obligations*
09/05/85-10/30/87 FY88: TOTAL: \$77,497
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Libby, P. A. LERC/Ross, H. 49-Engr, NEC

NAG 5-900 University of California - San Diego 2088
Variation of the net surface radiation flux from satellite radiances
Period *Obligations*
05/01/87-01/31/89 FY88: \$60,000 TOTAL: \$92,943
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gautier, C. H. GSFC/Choudhury, B. 39-Env Sci, NEC
Frouin, R. GSFC/Hall, F.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 5-905 University of California - San Diego 2089
Statistical description of tectonic motions analysis of crustal dynamics observations
Period *Obligations*
04/15/87-04/14/89 FY88: \$63,184 TOTAL: \$123,940
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Agnew, D. C. GSFC/Frey, H. V. 32-Geological Sci

NAG 5-945 University of California - San Diego 2090
Determination of solar flare accelerated ion angular distributions
Period *Obligations*
07/01/87-08/31/89 FY88: \$29,019 TOTAL: \$56,129
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lingenfelter, R. E. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Gurman, J. B.

NAG 5-1022 University of California - San Diego 2091
Analysis of multispectral airborne radiometer system data
Period *Obligations*
11/01/87-10/31/88 FY88: \$25,600 TOTAL: \$25,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, J. L. GSFC/Maynard, N. G. 33-Oceanography

NAG 5-1023 University of California - San Diego 2092
Plate motions and deformations from geologic and geodetic data
Period *Obligations*
11/01/87-10/31/89 FY88: \$80,615 TOTAL: \$80,615
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gaskell, C. GSFC/Frey, H. 32-Geological Sci
Jordan, T. H.

NAG 5-1028 University of California - San Diego 2093
Microprocessor design review services
Period *Obligations*
12/15/87-12/31/88 FY88: \$15,793 TOTAL: \$15,793
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Filius, W. F. GSFC/Scudder, J. D. 19-Phys Sci, NEC
GSFC/Ogilvie, K. W.

NAG 5-1071 University of California - San Diego 2094
Origins of solar luminosity variations
Period *Obligations*
10/01/88-09/30/89 FY88: \$32,000 TOTAL: \$32,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hudson, H. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Gurman, J. B.

NAG 8-499 University of California - San Diego 2095
Hard X-ray and low energy gamma-ray experiment: HEAO-1 data reduction and analysis
Period *Obligations*
10/01/84-09/30/88 FY88: \$67,963 TOTAL: \$282,963
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gruber, D. F. MSFC/Harper, B. A. 11-Astronomy

NAG 8-574 University of California - San Diego 2096
Study of active galactic nuclei spectra
Period *Obligations*
02/15/86-02/15/87 FY88: TOTAL: \$9,615
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, L. E. MSFC/Dornes, A. M. 11-Astronomy

NAG 8-577 University of California - San Diego 2097
Search for recurrent bursts from the 5 March 1979 gamma ray burst position
Period *Obligations*
04/01/86-03/31/87 FY88: TOTAL: \$10,559
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rothschild, R. E. MSFC/Dornes, A. M. 11-Astronomy

NAG 8-613 University of California - San Diego 2098
Nonlinear growth of instabilities in line driven stellar winds
Period *Obligations*
10/01/86-09/30/87 FY88: TOTAL: \$24,207
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owocki, S. P. MSFC/Potter, P. Y. 11-Astronomy

NAG 8-645 University of California - San Diego 2099
Investigation of the stability of the 60 day cycle SMC x 1
Period *Obligations*
06/05/87-10/04/88 FY88: TOTAL: \$29,657
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gruber, D. E. MSFC/Harper, B. 12-Chemistry

NAG 8-663 University of California - San Diego 2100
Analysis of HEAO 1 A 4 observations of 3 Abell clusters of galaxies
Period *Obligations*
07/10/87-07/09/88 FY88: \$2,997 TOTAL: \$17,997
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gruber, D. E. MSFC/Harper, B. 11-Astronomy

NAG 8-739 University of California - San Diego 2101
Variability of X ray pulsars
Period *Obligations*
07/01/88-06/30/89 FY88: \$32,310 TOTAL: \$32,310
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gruben, D. E. MSFC/Harper, B. 11-Astronomy

NAG 8-742 University of California - San Diego 2102
Scientific tradeoffs in pinhole/occultor facility accommodation
Period *Obligations*
07/18/88-10/17/88 FY88: \$24,270 TOTAL: \$24,270
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hudson, H. S. MSFC/Dabbs, J. R. 11-Astronomy

NAG 9-33 University of California - San Diego 2103
Historical studies on extraterrestrial materials
Period *Obligations*
02/01/83-03/01/89 FY88: \$142,000 TOTAL: \$843,790
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arnold, J. R. JSC/Browne, I. D. 12-Chemistry

NAG 9-41 University of California - San Diego 2104
Fragmentary solar system history
Period *Obligations*
02/01/83-02/01/89 FY88: \$125,000 TOTAL: \$740,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martí, K. JSC/Browne, I. D. 12-Chemistry
Lugmair, G. W.

NAG 9-49 University of California - San Diego 2105
Isotopic, chemical and mineralogical investigations of extraterrestrial materials
Period *Obligations*
02/01/83-02/01/89 FY88: \$263,000 TOTAL: \$1,491,669
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lugmair, G. W. JSC/Browne, I. D. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 9-65	University of California - San Diego	2106	The Earth's early mantle and crust: Isotopic and chemical studies
<i>Period</i>	<i>Obligations</i>		
02/01/84-05/01/87	FY88:	TOTAL: \$44,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
MacDougal, J. D.	JSC/Phinney, W. C.	39-Env Sci, NEC	
NAG 9-83	University of California - San Diego	2107	Oxygen isotopic anomalies in meteorites: Supernovae and light
<i>Period</i>	<i>Obligations</i>		
03/01/84-03/01/89	FY88: \$39,961	TOTAL: \$231,461	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Thiemens, M. H.	JSC/Browne, I. D.	32-Geological Sci	
NAG 9-186	University of California - San Diego	2108	Advanced propulsion method for transport of lunar materials
<i>Period</i>	<i>Obligations</i>		
09/15/86-02/01/89	FY88: \$25,000	TOTAL: \$175,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Arnold, J. R.	JSC/Roberts, B. B.	42-Astro Engr	
NAG 9-271	University of California - San Diego	2109	Pulmonary function during microgravity
<i>Period</i>	<i>Obligations</i>		
03/01/88-03/01/89	FY88: \$80,000	TOTAL: \$80,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
West, J. B.	JSC/Charles, J. B.	56-Medical Sciences	
NAGW 20	University of California - San Diego	2110	Mechanism of synthesis of amino, hydroxy and dicarboxylic acids in carbonaceous chondrites
<i>Period</i>	<i>Obligations</i>		
12/01/79-11/30/88	FY88: \$54,446	TOTAL: \$467,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Miller, S. R.	HQ-EB/Rummel, J. D. HQ-EB/Averner, M.	32-Geological Sci	
NAGW 30	University of California - San Diego	2111	Radioactive transfer effects in quasi-stellar emission line clouds
<i>Period</i>	<i>Obligations</i>		
02/01/80-02/28/87	FY88:	TOTAL: \$229,601	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Townes, C. H. Puetter, R. C.	HQ-EZ/Stencel, R. E. HQ-EZ/Weiler, E. J.	11-Astronomy	
NAGW 449	University of California - San Diego	2112	High resolution gamma-ray spectroscopy of cosmic sources
<i>Period</i>	<i>Obligations</i>		
04/15/83-01/31/89	FY88: \$1,295,000	TOTAL: \$5,015,095	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Matteson, J. L.	HQ-EZ/Kaluziński, L. J. HQ-EZ/Bunner, A. N.	11-Astronomy	
NAGW 585	University of California - San Diego	2113	Analysis of solar variability
<i>Period</i>	<i>Obligations</i>		
04/01/84-03/31/88	FY88:	TOTAL: \$202,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hudson, H. S.	HQ-EZ/Spicer, D. S.	13-Physics	
NAGW 629	University of California - San Diego	2114	Research grant-program on space station automation
<i>Period</i>	<i>Obligations</i>		
05/19/84-01/01/89	FY88: \$81,999	TOTAL: \$658,437	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Arnold, J. R.	HQ-ST/Solloway, C. B. HQ-ST/Swietek, G. E.	99-Multi-Discip	
NAGW 664	University of California - San Diego	2115	Analysis of satellite tracked drifting buoys in the north pacific
<i>Period</i>	<i>Obligations</i>		
10/01/84-09/30/87	FY88:	TOTAL: \$303,951	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Luther, D. S.	HQ-EE/Patzert, W. C. HQ-EE/Wilson, W. S.	33-Oceanography	
NAGW 683	University of California - San Diego	2116	Support of satellite oceanography experiments
<i>Period</i>	<i>Obligations</i>		
12/01/84-10/31/88	FY88: \$50,000	TOTAL: \$356,059	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Simpson, J. J.	HQ-EE/Yoder, J. A. HQ-EE/Wilson, W. S.	33-Oceanography	
NAGW 808	University of California - San Diego	2117	Determination of ocean circulation and the geoid using satellite altimetry
<i>Period</i>	<i>Obligations</i>		
10/01/85-09/30/87	FY88:	TOTAL: \$91,589	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tai, C. K.	HQ-EE/Richman, J. G. HQ-EE/Wilson, W. S.	33-Oceanography	
NAGW 897	University of California - San Diego	2118	Pulmonary function in weightlessness extended data analysis
<i>Period</i>	<i>Obligations</i>		
06/01/86-10/31/88	FY88: \$36,814	TOTAL: \$98,294	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
West, J. B.	HQ-EB/White, R. J.	51-Biological Sci	
NAGW 972	University of California - San Diego	2119	Carbon isotopes in polar ice core methane
<i>Period</i>	<i>Obligations</i>		
10/01/86-03/31/89	FY88: \$25,108	TOTAL: \$95,395	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Craig, H. Horibe, Y.	HQ-EE/Kurylo, M. J. HQ-EE/Watson, R. T.	39-Env Sci, NEC	
NAGW 981	University of California - San Diego	2120	Air sea interactions and the Indian monsoon satellite and modeling studies
<i>Period</i>	<i>Obligations</i>		
10/01/86-09/30/88	FY88: \$200,000	TOTAL: \$375,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gautier, C. Somerville, R. C.	HQ-EE/Thompson, D. E.	39-Env Sci, NEC	
NAGW 993	University of California - San Diego	2121	Assessing ocean productivity from satellite measurements
<i>Period</i>	<i>Obligations</i>		
10/01/86-11/30/88	FY88: \$103,038	TOTAL: \$183,038	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Eppley, R. W. Abbott, M. R.	HQ-EE/Yoder, J. A. HQ-EE/Wilson, W. S.	33-Oceanography	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 1028	University of California - San Diego	2122	Synoptic analysis of ice melt from Nimbus 7 SMMR
<i>Period</i>	<i>Obligations</i>		
12/01/86-11/30/87	FY88:	TOTAL: \$789	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Anderson, M. R.	HQ-EE/Jezek, K. C.	33-Oceanography	
	HQ-EE/Wilson, W. S.		
NAGW 1031	University of California - San Diego	2123	Rust minerals as templates for organic molecules
<i>Period</i>	<i>Obligations</i>		
01/01/87-12/31/88	FY88: \$117,550	TOTAL: \$195,099	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Arrhenius, G.	HQ-EB/Rummel, J. D.	51-Biological Sci	
NAGW 1038	University of California - San Diego	2124	Assessment of altimeter satellite accuracy
<i>Period</i>	<i>Obligations</i>		
03/01/87-02/28/89	FY88:	TOTAL: \$74,689	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Stewart, R. H.	HQ-EE/Richman, J. G.	33-Oceanography	
	HQ-EE/Wilson, W. S.		
NAGW 1070	University of California - San Diego	2125	Analysis of data from a six month bio optical mooring
<i>Period</i>	<i>Obligations</i>		
04/01/87-03/31/89	FY88: \$91,037	TOTAL: \$185,415	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Holm-hansen, O.	HQ-EE/Yoder, J. A.	33-Oceanography	
	HQ-EE/Wilson, W. S.		
NAGW 1126	University of California - San Diego	2126	Ocean storms array bottom pressure
<i>Period</i>	<i>Obligations</i>		
07/01/87-06/30/89	FY88: \$64,956	TOTAL: \$129,260	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Filloux, J. H.	HQ-EE/Richman, J. G.	33-Oceanography	
	HQ-EE/Wilson, W. S.		
NAGW 1136	University of California - San Diego	2127	Optical evaluation of Aviris performance over case II waters
<i>Period</i>	<i>Obligations</i>		
06/01/87-12/31/89	FY88: \$60,000	TOTAL: \$125,022	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Mueller, J. L.	HQ-EE/Wickland, D.	33-Oceanography	
	HQ-EE/Ruzek, M.		
NAGW 1141	University of California - San Diego	2128	The development of a prototype software system for education and research on the Earths atmosphere and surface
<i>Period</i>	<i>Obligations</i>		
08/01/87-07/31/89	FY88: \$60,000	TOTAL: \$120,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gautier, C. H.	HQ-EE/Butler, D. M.	31-Atmos Sci	
	HQ-EE/Theon, J. S.		
NAGW 1150	University of California - San Diego	2129	Use of generalized adiabatic theory to study magnetospheric current sheets and plasma boundary layers
<i>Period</i>	<i>Obligations</i>		
08/15/87-08/14/88	FY88: \$9,000	TOTAL: \$79,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Whipple, E. C.	HQ-EE/Vinas, A. F.	13-Physics	
	HQ-EE/Eastman, T. E.		
NAGW 1237	University of California - San Diego	2130	Satellite and ship studies of the California current during and after the 1982 el nino
<i>Period</i>	<i>Obligations</i>		
12/01/87-11/30/88	FY88: \$41,105	TOTAL: \$41,105	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Stewart, R. H.	HQ-EE/Yoder, J. A.	33-Oceanography	
	HQ-EE/Wilson, W. S.		
NAGW 1271	University of California - San Diego	2131	Experimental and theoretical determination of sea state bias in radar altimetry
<i>Period</i>	<i>Obligations</i>		
01/01/88-12/31/88	FY88: \$60,000	TOTAL: \$60,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Stewart, R. H.	HQ-EE/Richman, J. G.	33-Oceanography	
	HQ-EE/Wilson, W. S.		
NAGW 1274	University of California - San Diego	2132	Asteroid and comet surfaces properties
<i>Period</i>	<i>Obligations</i>		
01/01/88-12/31/88	FY88: \$30,000	TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
McFadden, L. A.	HQ-EL/Brinton, H. C.	59-Life Sci, NEC	
	HQ-EL/Rahe, J. H.		
NAGW 1399	University of California - San Diego	2133	Analysis of the contribution of starburst galaxies to the cosmic X-ray background
<i>Period</i>	<i>Obligations</i>		
06/27/88-06/26/89	FY88: \$10,000	TOTAL: \$10,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gruber, D. E.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy	
NAS 3-24639	University of California - San Diego	2134	Scientific support for a Space Shuttle particle cloud combustion experiment
<i>Period</i>	<i>Obligations</i>		
09/01/85-12/31/88	FY88: \$122,525	TOTAL: \$515,525	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Berlad, A. L.	LERC/Sacksteder, K. R.	49-Engr, NEC	
NAS 5-24463	University of California - San Diego	2135	Faint object spectrograph for space telescope
<i>Period</i>	<i>Obligations</i>		
09/15/78-12/15/88	FY88: \$1,200,000	TOTAL: \$44,222,566	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Harms, R. J.	GSFC/Shannon, J. L.	11-Astronomy	
	GSFC/Sours, W. P.		
NAS 5-25054	University of California - San Diego	2136	Development of digital image tubes
<i>Period</i>	<i>Obligations</i>		
05/01/78-09/30/89	FY88:	TOTAL: \$629,910	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Beaver, E. A.	GSFC/Shannon, J. L.	11-Astronomy	
NAS 5-26854	University of California - San Diego	2137	Electric field investigation by electron drift studies (EFIELDS)
<i>Period</i>	<i>Obligations</i>		
06/15/82-12/31/88	FY88:	TOTAL: \$403,682	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
McIlwain, C. E.	GSFC/O'brien, J. J.	13-Physics	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 5-29117 University of California - San Diego 2138
High energy X ray timing experiment (HEXTE)
Period Obligations
03/19/85-10/31/88 FY88: \$550,000 TOTAL: \$1,644,713
Prin. Invest. NASA Tech. Officer CASE Category
Rothschild, R. GSFC/Hibbard, W. 42-Astro Engr

NAS 5-29293 University of California - San Diego 2139
The Hubble space telescope guaranteed time observation program
Period Obligations
04/14/86-05/31/91 FY88: \$1,092,000 TOTAL: \$4,110,000
Prin. Invest. NASA Tech. Officer CASE Category
Baity, W. GSFC/Kalinowski, J. K. 41-Aero Engr
Burbidge, M.

NAS 5-30107 University of California - San Diego 2140
Guaranteed time observations of the high resolution spectrograph
Period Obligations
07/13/87-09/30/91 FY88: \$100,500 TOTAL: \$120,500
Prin. Invest. NASA Tech. Officer CASE Category
Beaver, E. A. GSFC/Vitagliano, A. D. 11-Astronomy

NAS 5-30338 University of California - San Diego 2141
Phase A study of a nuclear astrophysics Explorer mission
Period Obligations
06/07/88-07/02/89 FY88: \$119,000 TOTAL: \$119,000
Prin. Invest. NASA Tech. Officer CASE Category
Matteson, J. L. GSFC/Muller, R. 11-Astronomy

NAS 8-36081 University of California - San Diego 2142
Burst and transient source experiment (BATSE) spectroscopy detector (SD)
Period Obligations
06/01/84-12/31/92 FY88: \$310,000 TOTAL: \$2,116,891
Prin. Invest. NASA Tech. Officer CASE Category
Matteson, J. L. MSFC/Schrick, B. J. 11-Astronomy

NAS 9-16037 University of California - San Diego 2143
Pulmonary functions during weightlessness
Period Obligations
01/17/80-12/01/90 FY88: \$350,000 TOTAL: \$3,807,500
Prin. Invest. NASA Tech. Officer CASE Category
Young, W. JSC/Davis, C. 59-Life Sci, NEC

NASW 3667 University of California - San Diego 2144
Development of a charged-coupled-device digicon for space astronomy
Period Obligations
10/01/82-09/30/88 FY88: TOTAL: \$458,983
Prin. Invest. NASA Tech. Officer CASE Category
Hier, R. G. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Stencel, R. E.

NCA 2-225 University of California - San Diego 2145
Limitations in performing multiple sensorimotor tasks simultaneously
Period Obligations
07/01/87-06/30/89 FY88: \$21,832 TOTAL: \$42,374
Prin. Invest. NASA Tech. Officer CASE Category
Pashler, H. ARC/Johnston, J. C. 69-Psych, NEC

NCA 2-297 University of California - San Diego 2146
Use of campus facilities and services by NASA to support research on coherent structures and pattern formation in physical systems
Period Obligations
04/01/88-05/31/88 FY88: \$10,000 TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Lindenberg, K. ARC/Chapman, G. T. 19-Phys Sci, NEC

NCC 2-556 University of California - San Diego 2147
Quantitation of disuse alterations in human musculoskeletal tissue as a model for weightlessness
Period Obligations
09/01/88-02/28/89 FY88: \$23,000 TOTAL: \$23,000
Prin. Invest. NASA Tech. Officer CASE Category
Sartoris, D. J. ARC/Hargens, A. R. 56-Medical Sciences

NGL 05-005-004 University of California - San Diego 2148
Theoretical studies in astrophysics
Period Obligations
02/04/63-09/30/88 FY88: TOTAL: \$1,165,739
Prin. Invest. NASA Tech. Officer CASE Category
Gould, R. J. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
HQ-EZ/Bunner, A. N.

NGL 05-005-007 University of California - San Diego 2149
Study of geomagnetically trapped particles by Explorer and Injun satellite data, refining particle detectors, detector systems and telemetered data processing equipment
Period Obligations
02/20/64-09/30/88 FY88: \$290,000 TOTAL: \$4,401,364
Prin. Invest. NASA Tech. Officer CASE Category
McIlwain, C. E. HQ-ES/Desch, M. D. 13-Physics
HQ-EE/Eastman, T. E.

NGR 05-009-110 University of California - San Diego 2150
The structure and evolution of the asteroid belt
Period Obligations
01/23/70-11/30/88 FY88: \$72,000 TOTAL: \$1,057,690
Prin. Invest. NASA Tech. Officer CASE Category
Mendis, D. A. HQ-EL/Fox, K. 11-Astronomy
Alfven, H. HQ-EL/Quaide, W. L.

NGT 00-050-057 University of California - San Diego 2151
NASA graduate student researchers program
Period Obligations
09/22/86-09/21/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Somerville, R. C. HQ-XE/Owens, F. C. 33-Oceanography

NGT 00-050-131 University of California - San Diego 2152
NASA graduate student researchers program
Period Obligations
06/15/87-06/14/88 FY88: TOTAL: \$17,993
Prin. Invest. NASA Tech. Officer CASE Category
McIlwain, C. E. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-158 University of California - San Diego 2153
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,185 TOTAL: \$35,824
Prin. Invest. NASA Tech. Officer CASE Category
Abbott, M. R. HQ-XE/Owens, F. C. 33-Oceanography

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGT 00-050-159 University of California - San Diego 2154
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$16,655 TOTAL: \$34,655
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lee, S. H. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-160 University of California - San Diego 2155
 NASA graduate student researchers program
Period *Obligations*
 06/15/87-06/14/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Agnew, D. C. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-174 University of California - San Diego 2156
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/88 FY88: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thiemens, M. H. HQ-XE/Owens, F. C. 12-Chemistry

NGT 00-050-175 University of California - San Diego 2157
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-06/13/89 FY88: \$17,887 TOTAL: \$35,642
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Matteson, J. L. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-296 University of California - San Diego 2158
 NASA graduate student researchers program
Period *Obligations*
 08/01/88-07/31/89 FY88: \$15,913 TOTAL: \$15,913
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, S. L. HQ-XE/Owens, F. C. 12-Chemistry

NGT 00-050-304 University of California - San Diego 2159
 NASA graduate student researchers program
Period *Obligations*
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gautier, C. HQ-XE/Owens, F. C. 33-Oceanography

NSG 7102 University of California - San Diego 2160
 Research on processes controlling the formation and evolution of the small bodies in the solar system
Period *Obligations*
 09/01/74-10/31/87 FY88: TOTAL: \$671,350
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Alfvén, H. HQ-EL/Scott, D. H. 32-Geological Sci
 Mendis, D. HQ-EL/Boyce, J. M.

NSG 7161 University of California - San Diego 2161
 Analysis and interpretation of solar X-ray data from OSO-7
Period *Obligations*
 07/01/75-10/31/88 FY88: \$90,000 TOTAL: \$944,453
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hudson, H. S. HQ-ES/Ahluwalia, H. S. 13-Physics

NSG 7377 University of California - San Diego 2162
 Ultraviolet spectra of quasars related extra galactic sources, and X-ray sources
Period *Obligations*
 09/15/77-03/14/88 FY88: TOTAL: \$298,649
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burbidge, E. M. HQ-EZ/Stencel, R. E. 11-Astronomy
 HQ-EZ/Bogges, N. W.

NSG 7541 University of California - San Diego 2163
 Theoretical studies in gamma ray line astronomy
Period *Obligations*
 02/01/80-03/31/89 FY88: \$50,816 TOTAL: \$586,204
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lingenfelter, R. E. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
 HQ-EZ/Bunner, A. N.

NSG 7623 University of California - San Diego 2164
 The new plasmas and its applications to planetary magnetospheres and the heliosphere
Period *Obligations*
 07/01/79-06/30/89 FY88: \$124,999 TOTAL: \$812,957
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Alfvén, H. HQ-ES/Mellott, M. M. 19-Phys Sci, NEC
 Whipple, E. C. HQ-EE/Eastman, T. E.

NAG 2-434 University of California - San Francisco 2165
 Neural mechanisms by which gravitational stimuli and stress affect the secretion of the renin and other hormones
Period *Obligations*
 02/01/87-01/31/89 FY88: \$56,000 TOTAL: \$116,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ganong, W. F. ARC/Holton, E. M. 51-Biological Sci

NAG 9-157 University of California - San Francisco 2166
 Measurement of vertebral mineral using quantitative computed tomography
Period *Obligations*
 06/01/86-01/01/89 FY88: \$113,275 TOTAL: \$296,550
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Genant, H. K. JSC/Schneider, V. S. 59-Life Sci, NEC

NAGW 891 University of California - San Francisco 2167
 The long term integrated radiation environment of a 500km altitude 28.5 degree inclination orbit, a part of the free flyer biostack experiment A0015 of the LDEF 1 mission
Period *Obligations*
 04/15/86-10/14/88 FY88: \$50,000 TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Benton, E. V. HQ-EB/White, R. 13-Physics

NAGW 1244 University of California - San Francisco 2168
 Mechanism of control of bone growth by prostaglandins
Period *Obligations*
 01/01/88-12/31/88 FY88: \$117,230 TOTAL: \$117,230
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fulford, M. H. HQ-EB/Halstead, T. W. 51-Biological Sci

NAS 2-12846 University of California - San Francisco 2169
 Analysis of biosamples for Cosmos 1887
Period *Obligations*
 07/06/88-09/15/88 FY88: \$29,918 TOTAL: \$29,918
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cann, C. E. ARC/Connolly, J. P. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 9-16227 University of California - San Francisco 2170
Pathophysiology of mineral loss during increased urinary and fecal calcium excretion

<i>Period</i>	<i>Obligations</i>	
03/01/80-12/01/90	FY88: \$77,000	TOTAL: \$652,697
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnaud, C. D.	JSC/Newkirk, K. E.	59-Life Sci, NEC

NCC 2-115 University of California - San Francisco 2171
A preventive method for the zero-gravity sickness syndrome

<i>Period</i>	<i>Obligations</i>	
01/01/81-09/30/88	FY88: \$272,869	TOTAL: \$1,629,559
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Kirk, P. J.	61-Biol Aspects

NCC 2-178 University of California - San Francisco 2172
Bone, calcium, and space flight

<i>Period</i>	<i>Obligations</i>	
03/01/82-12/31/87	FY88:	TOTAL: \$52,754
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cann, C. E.	ARC/Holton, E. M.	56-Medical Sciences

NCC 2-194 University of California - San Francisco 2173
The role of low and high pressure baroreceptors in the control of fluid balance

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/89	FY88: \$18,059	TOTAL: \$161,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramsay, D. J.	ARC/Keil, L. C.	59-Life Sci, NEC

NCC 2-328 University of California - San Francisco 2174
The effect of skeletal unloading on bone formation

<i>Period</i>	<i>Obligations</i>	
11/01/84-10/31/88	FY88: \$157,107	TOTAL: \$475,205
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bikle, D. D.	ARC/Holton, E. M.	51-Biological Sci
Halloran, B.		

NCC 2-354 University of California - San Francisco 2175
Neural and hormonal mechanisms affecting adrenal responses

<i>Period</i>	<i>Obligations</i>	
08/01/85-09/30/88	FY88:	TOTAL: \$106,778
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dallman, M. F.	ARC/Danellis, J. V.	51-Biological Sci
	ARC/Keil, L. C.	

NCC 2-363 University of California - San Francisco 2176
Parathyroid and vitamin D function in disuse osteoporosis: Effect of dietary calcium

<i>Period</i>	<i>Obligations</i>	
06/01/85-03/31/88	FY88: \$38,552	TOTAL: \$166,844
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cann, C. E.	ARC/Arnaud, S.	59-Life Sci, NEC
Roberts, A. S.	LARC/Carraway, D. L.	

NCC 2-491 University of California - San Francisco 2177
The neuroanatomical substrate of vomiting

<i>Period</i>	<i>Obligations</i>	
06/01/87-08/31/88	FY88: \$24,836	TOTAL: \$87,291
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ralston, H. J.	ARC/Corcoran, M. L.	51-Biological Sci
Holstege, G.	ARC/Daunton, N. G.	
Mehler, W. R.		

NGT 05-029-801 University of California - San Francisco 2178
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/15/85-09/14/89	FY88: \$36,000	TOTAL: \$72,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bikle, D.	HQ-LE/Owens, F. C.	51-Biological Sci

NAG 1-567 University of California - Santa Barbara 2179
Sensitivity of optimized designs to problem parameters

<i>Period</i>	<i>Obligations</i>	
02/01/85-04/30/89	FY88: \$34,999	TOTAL: \$140,105
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vanderplaats, G. N.	LARC/Sobieski, J.	41-Aero Engr

NAG 1-782 University of California - Santa Barbara 2180
A large scale experiment in Fault tolerant software

<i>Period</i>	<i>Obligations</i>	
06/18/87-02/28/89	FY88: \$45,942	TOTAL: \$110,942
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kelly, J. P.	LARC/Eckhardt, D. E.	22-Computer Science

NAG 3-683 University of California - Santa Barbara 2181
Numerical optimization of transmissions

<i>Period</i>	<i>Obligations</i>	
01/01/86-02/27/88	FY88:	TOTAL: \$120,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vanderplaats, G.	LERC/Coe, H. H.	46-Mech Engr

NAG 3-894 University of California - Santa Barbara 2182
Theoretical damage mechanics for metal composites

<i>Period</i>	<i>Obligations</i>	
04/01/88-03/31/89	FY88: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leckie, F. A.	LERC/Freed, A. D.	46-Mech Engr

NAG 5-328 University of California - Santa Barbara 2183
Research relative to angular distribution of snow reflectance

<i>Period</i>	<i>Obligations</i>	
07/01/83-10/31/87	FY88:	TOTAL: \$131,385
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dozier, J.	GSFC/Chang, A. T.	32-Geological Sci
	GSFC/Hall, D. K.	

NAG 5-548 University of California - Santa Barbara 2184
Ecological properties of the biosphere assessing key vegetation characteristics

<i>Period</i>	<i>Obligations</i>	
05/06/85-09/30/87	FY88:	TOTAL: \$180,657
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Botkin, D. B.	GSFC/Hall, F. G.	39-Env Sci, NEC
Estes, J. E.		
Woods, K. D.		

NAG 5-917 University of California - Santa Barbara 2185
Correspondence of surface climate parameters with satellite and terrain data

<i>Period</i>	<i>Obligations</i>	
06/01/87-02/28/89	FY88: \$50,000	TOTAL: \$104,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dozier, J.	GSFC/Choudhury, B.	39-Env Sci, NEC
Davis, F.	GSFC/Hall, F.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 5-1010 University of California - Santa Barbara 2186
Radar forest backscatter model
Period *Obligations*
10/01/87-09/30/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simonett, D. S. GSFC/Imhoff, M. L. 99-Multi-Discip

NAG 9-224 University of California - Santa Barbara 2187
Paleointensity experiments on eucrites
Period *Obligations*
05/01/87-05/01/89 FY88: \$18,924 TOTAL: \$37,456
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cisowski, S. M. JSC/Browne, I. D. 32-Geological Sci

NAG 9-238 University of California - Santa Barbara 2188
Experimental rheology of Martian magma and thermal evolution of Mars
Period *Obligations*
08/01/87-02/01/89 FY88: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spera, F. J. JSC/Browne, I. D. 32-Geological Sci

NAGW 290 University of California - Santa Barbara 2189
Ship and satellite bio-optical research in the California blight
Period *Obligations*
02/01/82-09/30/88 FY88: \$290,726 TOTAL: \$1,732,094
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, R. C. HQ-EE/Yoder, J. A. 33-Oceanography
Baker, K. S. HQ-EE/Wilson, W. S.

NAGW 455 University of California - Santa Barbara 2190
NASA remote sensing information sciences research group
Period *Obligations*
05/01/83-04/30/89 FY88: \$172,578 TOTAL: \$1,131,870
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Estes, J. E. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC
Smith, T. HQ-EE/Tuyahov, A.
Star, J. L.

NAGW 788 University of California - Santa Barbara 2191
Canopy reflectance in a tropical wooded grassland
Period *Obligations*
07/01/85-12/31/87 FY88: TOTAL: \$71,302
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simonett, D. S. HQ-EE/Murphy, R. E. 39-Env Sci, NEC
HQ-EE/Wickland, D. E.

NAGW 987 University of California - Santa Barbara 2192
Browse in the EOS era
Period *Obligations*
11/01/86-02/28/89 FY88: \$75,000 TOTAL: \$373,772
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Estes, J. E. HQ-EE/Dodge, J. C. 39-Env Sci, NEC
Star, J. L. HQ-EE/Tuyahov, A. J.

NAGW 1062 University of California - Santa Barbara 2193
Advanced radiometer development and microwave studies
Period *Obligations*
07/01/87-01/31/89 FY88: \$90,000 TOTAL: \$130,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lubin, P. M. HQ-EZ/Gillett, F. C. 11-Astronomy
HQ-EZ/Weiler, E. J.

NAGW 1137 University of California - Santa Barbara 2194
Avisir measurements of snow reflectance in alpine
Period *Obligations*
08/01/87-06/30/89 FY88: \$62,496 TOTAL: \$96,002
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dozier, J. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
HQ-EE/Ruzek, M.

NAGW 1246 University of California - Santa Barbara 2195
The extensional tectonics of southeastern California
Period *Obligations*
01/01/88-12/31/88 FY88: \$88,351 TOTAL: \$88,351
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crowell, J. C. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Ruzek, M.

NAGW 1265 University of California - Santa Barbara 2196
Snow radiative transfer and measurement of snow properties
Period *Obligations*
03/01/88-02/28/89 FY88: \$75,000 TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dozier, J. HQ-EE/Ruzek, M. J. 39-Env Sci, NEC
HQ-EE/Murphy, R. E.

NAS 5-28697 University of California - Santa Barbara 2197
Sensor evaluation for vegetation analysis
Period *Obligations*
04/09/85-12/08/88 FY88: TOTAL: \$59,052
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Estes, J. E. GSFC/Oseroff, H. 39-Env Sci, NEC

NAS 5-28770 University of California - Santa Barbara 2198
Thematic mapper investigations in atmospheric correction and measurement of snow radiation
Period *Obligations*
08/01/85-11/30/88 FY88: TOTAL: \$231,214
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dozier, J. GSFC/Oseroff, H. 39-Env Sci, NEC

NCA 2-113 University of California - Santa Barbara 2199
Braiding of Saturn's F ring and accretion of the planets
Period *Obligations*
04/01/86-12/31/87 FY88: TOTAL: \$3,933
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peale, S. ARC/Cassen, P. M. 11-Astronomy
Lissauer, J. ARC/Cuzzi, J. N.

NCC 2-63 University of California - Santa Barbara 2200
An investigation of the effect of surface impurities on the absorption kinetics of hydrogen chemisorbed iron
Period *Obligations*
04/01/80-12/31/88 FY88: \$158,921 TOTAL: \$712,083
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shanabarger, M. R. ARC/Nelson, H. G. 47-Materials Engr

NGR 05-010-062 University of California - Santa Barbara 2201
Planetary geophysics
Period *Obligations*
03/01/73-01/31/89 FY88: \$74,987 TOTAL: \$671,868
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peale, S. J. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Scott, D. H.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGT 00-050-192 University of California - Santa Barbara 2202
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lubin, P. M.	HQ-XE/Owens, F. C.	13-Physics

NCA 2-62 University of California - Santa Cruz 2210
Optimization of infrared detector systems requiring different cryogenic temperatures (joint research interchange)

<i>Period</i>	<i>Obligations</i>	
09/01/85-12/31/87	FY88:	TOTAL: \$68,969
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Phillips, R. J.	ARC/Erickson, E. F.	11-Astronomy

NGT 05-010-804 University of California - Santa Barbara 2203
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/84-12/31/87	FY88:	TOTAL: \$47,713
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simonett, D. S.	HQ-XE/Owens, F. C.	32-Geological Sci

NCA 2-65 University of California - Santa Cruz 2211
Angular momentum transport in protoplanetary disks

<i>Period</i>	<i>Obligations</i>	
07/01/85-12/31/87	FY88:	TOTAL: \$79,222
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, D. N.	ARC/Cassen, P. M.	11-Astronomy

NAG 5-750 University of California - Santa Cruz 2204
Viscoelastic deformation near active plate motions

<i>Period</i>	<i>Obligations</i>	
03/15/86-04/30/89	FY88: \$58,359	TOTAL: \$173,418
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ward, S. N.	GSFC/Frey, H. V.	32-Geological Sci

NCA 2-66 University of California - Santa Cruz 2212
Rotation in early stages of stellar evolution

<i>Period</i>	<i>Obligations</i>	
07/01/85-12/31/87	FY88:	TOTAL: \$77,299
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bodenheimer, P.	ARC/Cassen, P. M. ARC/Black, D. C.	11-Astronomy

NAG 9-191 University of California - Santa Cruz 2205
Isotopic constraints on early crust and mantle evolution in the Saglek Hebron area of the North Atlantic craton

<i>Period</i>	<i>Obligations</i>	
05/01/87-05/01/89	FY88: \$29,500	TOTAL: \$59,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Collerson, K. D.	JSC/Phinney, W. C.	32-Geological Sci

NCA 2-129 University of California - Santa Cruz 2213
A model for the near infrared emission from interstellar grains

<i>Period</i>	<i>Obligations</i>	
06/01/86-10/31/87	FY88:	TOTAL: \$25,639
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bodenheimer, P.	ARC/Werner, M. W.	11-Astronomy

NAGW 590 University of California - Santa Cruz 2206
Structure of Saturn's ring; Collision properties of water/ice particles

<i>Period</i>	<i>Obligations</i>	
02/01/84-12/31/88	FY88: \$36,997	TOTAL: \$185,997
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridges, F.	HQ-EL/Underwood, J. R.	32-Geological Sci
Lin, D. N.	HQ-EL/Boyce, J. M.	

NCA 2-152 University of California - Santa Cruz 2214
Infrared spectroscopy chemical abundance gradients in the galaxy and observing strategies for orbiting infrared telescopes

<i>Period</i>	<i>Obligations</i>	
08/12/86-08/11/88	FY88: \$4,070	TOTAL: \$79,246
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rank, D. M.	ARC/Witteborn, F. C.	11-Astronomy
Simpson, J. P.	ARC/Erickson, E. F.	

NAGW 1102 University of California - Santa Cruz 2207
Accretion disk boundary layers

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$31,001	TOTAL: \$61,472
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, D. N.	HQ-EZ/Gillett, F. C.	11-Astronomy
	HQ-EZ/Stachnik, R. V.	

NCA 2-200 University of California - Santa Cruz 2215
Structure and evolution of self gravitating disks around protostars

<i>Period</i>	<i>Obligations</i>	
04/01/87-03/31/89	FY88: \$39,998	TOTAL: \$79,998
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, D. N.	ARC/Cassen, P. M.	11-Astronomy
Bodenheimer, P.		

NAGW 1211 University of California - Santa Cruz 2208
The dynamics of eccentric rings around Uranus

<i>Period</i>	<i>Obligations</i>	
09/15/87-09/14/89	FY88:	TOTAL: \$64,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, D. N.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Boyce, J. M.	

NCA 2-248 University of California - Santa Cruz 2216
Perceptually lossless compression for two and three dimensional image data

<i>Period</i>	<i>Obligations</i>	
08/01/87-10/31/88	FY88:	TOTAL: \$15,127
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hitchner, L. E.	ARC/Watson, A.	69-Psych, NEC

NAGW 1273 University of California - Santa Cruz 2209
Nucleosynthesis supervalue and high energy transients

<i>Period</i>	<i>Obligations</i>	
01/01/88-12/31/88	FY88: \$76,811	TOTAL: \$76,811
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woodsley, S. E.	HQ-ES/Mellott, M. M.	13-Physics
	HQ-ES/Jones, W. V.	

NCA 2-289 University of California - Santa Cruz 2217
Kinetic study of the template directed elongation of oligoadenylates

<i>Period</i>	<i>Obligations</i>	
01/15/88-01/14/90	FY88: \$39,820	TOTAL: \$39,820
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kanavarioti, A.	ARC/Chang, S.	12-Chemistry
Bernasconi, C. F.		
Crews, P. O.		

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-312 University of California - Santa Cruz 2218
Particle gas dynamics in the protoplanetary nebula
Period *Obligations*
05/01/88-04/30/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, N. C. ARC/Cuzzi, J. N. 11-Astronomy

NCA 2-347 University of California - Santa Cruz 2219
Dynamical models of stellar clusters and dwarf galaxies in the local group based on the proper motion data
Period *Obligations*
08/15/88-08/14/89 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, D. N. ARC/Scargle, J. D. 11-Astronomy

NCA 2-348 University of California - Santa Cruz 2220
The use of the astrometric telescope facility to investigate large scale galactic structure
Period *Obligations*
08/15/88-08/14/89 FY88: \$16,250 TOTAL: \$16,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jones, B. F. ARC/Scargle, J. D. 11-Astronomy

NCA 2-355 University of California - Santa Cruz 2221
Low light imaging in airborne astronomy
Period *Obligations*
10/05/88-10/04/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rank, D. M. ARC/Erickson, E. F. 11-Astronomy

NCC 2-438 University of California - Santa Cruz 2222
Intelligent signal analysis and recognition
Period *Obligations*
12/01/86-11/30/87 FY88: \$40,921 TOTAL: \$40,921
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Levinson, R. A. ARC/Jones, H. W. 22-Computer Science
Helman, D. R. ARC/Oliver, B. M.
Mantey, P. E.

NCC 2-485 University of California - Santa Cruz 2223
Preparation of the SIRTF science operations center and precursor observations for SIRTE projects
Period *Obligations*
07/01/87-11/30/88 FY88: \$7,543 TOTAL: \$98,968
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rank, D. M. ARC/Witteborn, F. C. 11-Astronomy
ARC/Werner, M. W.

NCC 2-534 University of California - Santa Cruz 2224
Towards a self replicating chemical system based on cytidylic and guanilic acids
Period *Obligations*
01/15/88-01/14/89 FY88: \$35,531 TOTAL: \$35,531
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kanavarioti, A. ARC/Chang, S. 12-Chemistry
Bernasconi, C. F.

NCC 2-544 University of California - Santa Cruz 2225
Theoretical and observational studies of accretion disks planet formation and the formation of star clusters and precursor science for SIRTF
Period *Obligations*
07/01/88-06/30/89 FY88: \$149,222 TOTAL: \$149,222
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, D. N. ARC/Hollenbach, D. J. 11-Astronomy
ARC/Casser, P.

NGT 00-050-281 University of California - Santa Cruz 2226
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$16,617 TOTAL: \$16,617
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, D. N. HQ-EZ/Nagy, T. 11-Astronomy

NGT 05-061-801 University of California - Santa Cruz 2227
NASA graduate student researchers program
Period *Obligations*
09/15/84-06/30/88 FY88: \$37,000 TOTAL: \$37,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bodenheimer, P. HQ-LB/Owens, F. C. 41-Aero Engr

NGT 00-090-014 Univ. of California 2228
National physical science consortium for graduate degrees for minorities and women
Period *Obligations*
06/01/88-05/31/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Snow, L. N. HQ-U/Margolis, M. 19-Phys Sci, NEC

NAG 2-322 University of The Pacific 2229
Bone cell kinetics of simulated weightlessness
Period *Obligations*
11/01/84-10/31/88 FY88: \$44,000 TOTAL: \$198,494
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roberts, W. E. ARC/Holton, E. M. 51-Biological Sci

NAG 2-505 University of The Pacific 2230
Wind tunnel pressurization and recovery systems for recovery of heavy gas freon-12 from air freon mixture in a wind tunnel application
Period *Obligations*
11/27/87-02/14/89 FY88: \$5,000 TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pejack, E. R. ARC/Steinle, F. W., Jr. 46-Mech Engr
ARC/Petroff, D. N.

NCC 2-224 University of The Pacific 2231
Bone cell activity in altered gravitational states
Period *Obligations*
12/01/82-11/30/88 FY88: \$149,000 TOTAL: \$613,308
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roberts, W. E. ARC/Holton, E. M. 51-Biological Sci

NCC 2-357 University of The Pacific 2232
Flow unsteadiness effects on boundary layers in support of rotorcraft and x-wing technology
Period *Obligations*
10/01/85-09/30/89 FY88: \$68,927 TOTAL: \$315,515
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murthy, S. V. ARC/Steinle, F. W. 41-Aero Engr

NAG 1-580 University of Redlands 2233
Wavelength control of semiconductor lasers
Period *Obligations*
04/01/85-07/31/88 FY88: \$99,990 TOTAL: \$99,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, S. LARC/Hendricks, H. D. 45-Elec Engr
LARC/Benz, H.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 8-71	University of San Francisco	2234	NCA 2-161	University of Santa Clara	2242
Investigation of space radiation environment through analysis of detectors exposed on Spacelab 1 and 2			Controlled ecological life support system program science planning and experimentation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/07/86-09/22/89	FY88: \$70,000	TOTAL: \$180,000	09/01/86-08/31/89	FY88: \$10,000	TOTAL: \$49,985
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	MSFC/Parnell, T. A.	13-Physics	Klein, H. P.	ARC/MacElroy, R. D.	51-Biological Sci
	MSFC/Watts, J. W., Jr.				
NAG 9-235	University of San Francisco	2235	NCA 2-201	University of Santa Clara	2243
High let space radiation dosimetry of astronauts			Joint evaluation of potential calculations for the transonic flow regime		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/87-06/01/89	FY88: \$100,000	TOTAL: \$254,000	03/22/87-09/30/87	FY88:	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Nachtwey, D. S.	13-Physics	Ma, J. T.	ARC/Holst, T. L.	49-Engr, NEC
NAS 8-34340	University of San Francisco	2236	NCA 2-213	University of Santa Clara	2244
Heavy particle, passive, personnel dosimetry using, etched particles			On the classification of computation algorithms and computers		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/28/81-12/31/86	FY88:	TOTAL: \$169,600	05/15/87-05/14/89	FY88: \$39,661	TOTAL: \$78,443
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	MSFC/Parnell, T. A.	13-Physics	Alkhatib, H.	ARC/Stevens, K.	22-Computer Science
	MSFC/Watts, J. W.				
NAS 9-17389	University of San Francisco	2237	NCA 2-226	University of Santa Clara	2245
Support for NASA ground-based radiological experiments			In vivo studies on the oxygen requirements for the synthesis of unsaturated fatty acids in cyanobacteria		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/85-01/01/88	FY88:	TOTAL: \$211,000	06/01/87-05/31/89	FY88: \$13,323	TOTAL: \$22,817
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Nachtwey, D. S.	51-Biological Sci	Klein, H. P.	ARC/Jahnke, L. L.	51-Biological Sci
NCC 2-521	University of San Francisco	2238	NCA 2-250	University of Santa Clara	2246
Cosmos space radiation experiments			The origin and evolution of nitrate reductase activity		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/88-04/30/89	FY88: \$120,000	TOTAL: \$120,000	08/01/87-07/31/88	FY88: \$9,945	TOTAL: \$14,406
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Connolly, J. P.	13-Physics	Tomlinson, G. A.	ARC/Hochstein, L. I.	51-Biological Sci
	ARC/Ballard, R. W.				
NCA 2-48	University of Santa Clara	2239	NCA 2-282	University of Santa Clara	2247
Analytic study of chaotic behavior of some nonlinear dynamical systems			Joint development of R C tilt rotor aircraft model roll capable wind tunnel model support R C flying platform model		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/87	FY88:	TOTAL: \$80,000	01/01/88-07/31/88	FY88: \$8,400	TOTAL: \$8,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unal, A.	ARC/Tobak, M.	41-Aero Engr	Hight, T. K.	ARC/Kutler, P.	46-Mech Engr
				ARC/Petroff, D. N.	
NCA 2-50	University of Santa Clara	2240	NCA 2-685501	University of Santa Clara	2248
The isolation of diverse metabolic types of extreme halophiles			Improvement of a mass spectrometer system to produce computerized output from laser-vaporized materials		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/87	FY88:	TOTAL: \$36,816	10/01/84-06/30/87	FY88:	TOTAL: \$26,432
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tomlinson, G. A.	ARC/Hochstein, L. I.	51-Biological Sci	Yang, C. Y.	ARC/Lincoln, K. A.	47-Materials Engr
	ARC/Jahnke, L. L.				
NCA 2-99	University of Santa Clara	2241	NCC 2-130	University of Santa Clara	2249
Investigation into personal computer networks			Interpretation of Pioneer Venus orbiter data (PVOD) with the two-dimensional ionosphere model		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/86-09/15/88	FY88:	TOTAL: \$44,756	06/01/81-06/30/89	FY88: \$16,485	TOTAL: \$115,655
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alkhatib, H. S.	ARC/Yin, J.	22-Computer Science	McCormick, P. T.	ARC/Whitten, R. C.	19-Phys Sci, NEC
				ARC/Mihalov, J. D.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-166 University of Santa Clara 2250
Model reactions for prebiotic translation in fluctuating clay environments
Period Obligations
01/01/82-12/31/88 FY88: TOTAL: \$304,134
Prin. Invest. NASA Tech. Officer CASE Category
White, D. H. ARC/Chang, S. 12-Chemistry

NCC 2-406 University of Santa Clara 2251
Space physiological studies and space station laboratory development
Period Obligations
03/01/86-10/31/88 FY88: \$205,242 TOTAL: \$595,559
Prin. Invest. NASA Tech. Officer CASE Category
Fast, T. ARC/Grindeland, R. 51-Biological Sci

NCC 2-554 University of Santa Clara 2252
Performance analysis of local area networks
Period Obligations
06/15/88-12/14/88 FY88: \$57,156 TOTAL: \$57,156
Prin. Invest. NASA Tech. Officer CASE Category
Alkhatib, H. A. ARC/Yin, J. 22-Computer Science
ARC/Schoch, S. K.

NAG 1-819 University of Southern California 2253
Pressure measurements of impinging jet with asymmetric nozzle
Period Obligations
09/14/87-09/13/88 FY88: TOTAL: \$64,064
Prin. Invest. NASA Tech. Officer CASE Category
Ho, C. M. LARC/Seiner, J. M. 41-Aero Engr
LARC/Norum, T. D.

NAG 2-146 University of Southern California 2254
Pioneer 10/11 data analysis of the ultraviolet photometry experiment
Period Obligations
10/01/81-01/31/89 FY88: \$177,000 TOTAL: \$1,061,999
Prin. Invest. NASA Tech. Officer CASE Category
Judge, D. ARC/Fimmel, R. O. 13-Physics
ARC/Phillips, J. R.

NAG 2-532 University of Southern California 2255
An historical study of information sciences research
Period Obligations
06/01/88-02/28/89 FY88: \$178,812 TOTAL: \$178,812
Prin. Invest. NASA Tech. Officer CASE Category
Uncapher, K. W. ARC/Friedland, P. E. 22-Computer Science

NAG 3-529 University of Southern California 2256
Experimental study of superlattice structures for photovoltaic energy conversion
Period Obligations
03/15/84-10/12/87 FY88: TOTAL: \$160,000
Prin. Invest. NASA Tech. Officer CASE Category
Dapkus, P. D. LERC/Brinker, D. J. 45-Elec Engr
LERC/Flood, D. J.

NAGW 13 University of Southern California 2257
Observational and theoretical studies of solar p and G mode oscillations
Period Obligations
01/01/80-12/31/88 FY88: \$190,000 TOTAL: \$1,116,746
Prin. Invest. NASA Tech. Officer CASE Category
Rhodes, E. J. HQ-ES/Ahluwalia, H. S. 13-Physics

NAGW 163 University of Southern California 2258
A proposed study of the temporal morphology of the Io plasma utilizing the Pioneer and Voyager extreme ultraviolet data
Period Obligations
04/01/81-07/31/88 FY88: \$42,300 TOTAL: \$330,788
Prin. Invest. NASA Tech. Officer CASE Category
Judge, D. L. HQ-EL/Fox, K. 31-Atmos Sci
Broadfoot, L. HQ-EL/Quaide, W. L.
Kunc, J.

NAGW 317 University of Southern California 2259
Fluorescence studies of phytoplankton pigments: A comparison of classical and laser spectroscopy
Period Obligations
04/01/82-02/29/89 FY88: \$93,999 TOTAL: \$444,598
Prin. Invest. NASA Tech. Officer CASE Category
Kiefer, D. A. HQ-EE/Yoder, J. A. 33-Oceanography
Soochoo, J. B. HQ-EE/Wilson, W. S.

NAGW 1061 University of Southern California 2260
Graduate research and training grant in hypersonics
Period Obligations
03/15/87-03/14/89 FY88: \$200,000 TOTAL: \$400,000
Prin. Invest. NASA Tech. Officer CASE Category
Kaplan, R. E. HQ-RF/Wander, S. M. 19-Phys Sci, NEC
HQ-RF/Graves, R. A.

NAGW 1401 University of Southern California 2261
Mercuric iodine X-ray detectors
Period Obligations
07/01/88-06/30/89 FY88: \$100,810 TOTAL: \$100,810
Prin. Invest. NASA Tech. Officer CASE Category
Iwanczyk, J. S. HQ-EL/Mahaffy, P. 32-Geological Sci

NAS 3-25068 University of Southern California 2262
Liquid droplet generator
Period Obligations
10/10/86-10/09/88 FY88: TOTAL: \$100,244
Prin. Invest. NASA Tech. Officer CASE Category
Muntz, E. P. LERC/White, A. K. 41-Aero Engr

NASW 4199 University of Southern California 2263
Operation of an Industrial Application Center
Period Obligations
07/01/86-06/30/88 FY88: \$456,479 TOTAL: \$972,809
Prin. Invest. NASA Tech. Officer CASE Category
King, R. HQ/Bivins, R. 99-Multi-Discip

NASW 4202 University of Southern California 2264
Continued development of uncooled mercuric iodide X ray detectors and spectrometer for space applications
Period Obligations
11/01/86-04/30/88 FY88: TOTAL: \$146,202
Prin. Invest. NASA Tech. Officer CASE Category
Dabrowski, A. J. HQ-EL/Quaide, W. L. 13-Physics
HQ-EL/Gold, R.

NCA 2-173 University of Southern California 2265
Coherence and chaos in shear flows
Period Obligations
11/01/86-10/31/88 FY88: \$25,248 TOTAL: \$50,321
Prin. Invest. NASA Tech. Officer CASE Category
Huerre, P. ARC/Moin, P. 41-Aero Engr
Redekopp, L. ARC/Chapman, G. T.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-379 University of Southern California 2266
Temporal factors in mental workload
Period *Obligations*
10/01/85-09/30/88 FY88: \$54,964 TOTAL: \$123,361
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hancock, P. A. ARC/Hart, S. G. 69-Psych, NEC
ARC/Johnson, W.

NCC 2-520 University of Southern California 2267
Proposed research program in information processing
Period *Obligations*
11/01/87-09/30/88 FY88: \$1,743,463 TOTAL: \$1,743,463
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Uncapher, K. W. ARC/Friedland, P. E. 22-Computer Science

NCC 2-538 University of Southern California 2268
Research on soar
Period *Obligations*
01/01/88-09/30/88 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenbloom, P. ARC/Friedland, P. 22-Computer Science

NCC 2-539 University of Southern California 2269
Center for experimental research in parallel algorithms software and systems
Period *Obligations*
05/01/88-10/31/88 FY88: \$646,000 TOTAL: \$646,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mizell, D. W. ARC/Lum, H. 22-Computer Science
ARC/McKellar, D. B.

NGR 05-018-180 University of Southern California 2270
Photon-molecule interaction studies of the atmospheric gases
Period *Obligations*
08/31/72-04/30/89 FY88: \$75,511 TOTAL: \$1,030,622
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Judge, D. L. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NGT 00-050-091 University of Southern California 2271
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/88 FY88: TOTAL: \$35,709
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiefer, D. A. HQ-LE/Owens, F. C. 51-Biological Sci

NGT 00-050-163 University of Southern California 2272
NASA graduate student researchers program
Period *Obligations*
07/01/87-06/30/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arbib, M. HQ-XE/Owens, F. C. 46-Mech Engr

NSG 5108 University of Southern California 2273
Rocket experiments to measure the solar intensity and profile
Period *Obligations*
04/01/76-11/30/88 FY88: \$218,831 TOTAL: \$1,369,995
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Judge, D. L. GSFC/Early, L. J. 13-Physics
Ogawa, H. S. GSFC/Pless, R. H.

NSG 5422 University of Southern California 2274
A comparative study of the far ultraviolet spectra of BE stars
Period *Obligations*
10/15/79-08/31/89 FY88: \$61,500 TOTAL: \$230,140
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peters, G. J. GSFC/Kondo, Y. 11-Astronomy
Polidan, R. S.
Percy, J. R.

COLORADO

NAG 1-554 Colorado State University 2275
Observations of upper and middle tropospheric clouds
Period *Obligations*
01/01/85-12/31/88 FY88: \$100,000 TOTAL: \$363,543
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cox, S. K. LARC/McDougal, D. S. 31-Atmos Sci
LARC/Owens, T. L.

NAG 1-661 Colorado State University 2276
Analysis of Nimbus 7 solar and Earth radiation budget measurements related to atmospheric circulation
Period *Obligations*
06/12/86-09/11/87 FY88: TOTAL: \$125,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vonder Haar, T. H. LARC/Smith, G. L. 31-Atmos Sci

NAG 1-865 Colorado State University 2277
Scientific analysis of satellite Earth radiation budget measurements related to atmospheric circulation and climate
Period *Obligations*
03/18/88-03/17/89 FY88: \$125,000 TOTAL: \$125,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haar, T. H. LARC/Smith, G. L. 31-Atmos Sci

NAG 1-893 Colorado State University 2278
Numerical simulation of closed cellular cloud patterns in marine subtropical stratocumulus layers
Period *Obligations*
07/01/88-12/31/88 FY88: \$17,381 TOTAL: \$17,381
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Randall, D. A. LARC/Owens, T. L. 31-Atmos Sci
LARC/McDougal, D. S.

NAG 3-633 Colorado State University 2279
Development and in-site characteriaction of dielectric layers for use with compound semiconductors
Period *Obligations*
04/01/85-11/29/88 FY88: \$30,000 TOTAL: \$245,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lile, D. L. LERC/Pouch, J. J. 13-Physics

NAG 3-776 Colorado State University 2280
Space plasma contactor research
Period *Obligations*
01/31/87-12/29/88 FY88: \$75,428 TOTAL: \$150,425
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilbur, P. J. LERC/Patterson, M. J. 42-Astro Engr

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAG 3-791 Colorado State University 2281
 Low Earth orbital atomic oxygen simulation research
Period Obligations
 04/01/87-09/30/88 FY88: TOTAL: \$29,998
Prin. Invest. NASA Tech. Officer CASE Category
 Wilbur, P. J. LERC/Rutledge, S. K. 13-Physics

NAGW 601 Colorado State University 2289
 Surface energy fluxes in complex terrain
Period Obligations
 02/01/84-12/31/87 FY88: TOTAL: \$280,560
Prin. Invest. NASA Tech. Officer CASE Category
 Reiter, E. R. HQ-EE/Curran, R. J. 31-Atmos Sci
 Cox, S. K. HQ-EE/Theon, J. S.

NAG 5-359 Colorado State University 2282
 Sea breeze induced mesoscale systems and severe weather
Period Obligations
 08/01/83-11/30/88 FY88: \$467 TOTAL: \$388,652
Prin. Invest. NASA Tech. Officer CASE Category
 Pielke, R. A. GSFC/Koch, S. E. 31-Atmos Sci
 Segal, M. GSFC/Uccellini, L. W.

NAS 1-16465 Colorado State University 2290
 Scientific investigations for the Earth radiation budget experiment (ERBE)
Period Obligations
 09/30/80-02/28/88 FY88: TOTAL: \$332,146
Prin. Invest. NASA Tech. Officer CASE Category
 Vonderhaar, T. H. LARC/Hall, J. B. 31-Atmos Sci
 LARC/Barkstrom, B. R.

NAG 5-910 Colorado State University 2283
 Surface biophysical properties and trace gas exchange in tall grass
Period Obligations
 06/15/87-05/31/89 FY88: \$115,000 TOTAL: \$199,296
Prin. Invest. NASA Tech. Officer CASE Category
 Schimel, D. S. GSFC/Levine, E. R. 39-Env Sci, NEC
 Parton, W. J. GSFC/Hall, F.
 Woodmansee, R. G.

NAS 2-12824 Colorado State University 2291
 Analysis of biosamples from the Cosmos 1887 biosatellite mission
Period Obligations
 05/06/88-09/15/88 FY88: \$33,000 TOTAL: \$33,000
Prin. Invest. NASA Tech. Officer CASE Category
 Phillips, R. W. ARC/Connolly, J. P. 51-Biological Sci

NAG 5-1058 Colorado State University 2284
 Hydrological cloud studies
Period Obligations
 07/15/88-07/14/89 FY88: \$42,219 TOTAL: \$42,219
Prin. Invest. NASA Tech. Officer CASE Category
 Randall, D. GSFC/King, M. D. 31-Atmos Sci

NAS 8-36354 Colorado State University 2292
 Measurement of terms and parameters in turbulent models
Period Obligations
 08/13/85-02/01/89 FY88: \$191,297 TOTAL: \$471,297
Prin. Invest. NASA Tech. Officer CASE Category
 Sandborn, V. A. MSFC/Campbell, W. 46-Mech Engr
 MSFC/Hearman, J.

NAG 8-643 Colorado State University 2285
 Microwave radiative transfer studies in convective storms during space
Period Obligations
 07/01/87-06/30/89 FY88: \$95,000 TOTAL: \$186,944
Prin. Invest. NASA Tech. Officer CASE Category
 Bringe, V. N. MSFC/Spencer, R. W. 31-Atmos Sci
 Stephens, G. MSFC/Hood, R.

NAS 8-36472 Colorado State University 2293
 Investigations of severe tornadic thunderstorm development and evaluation based on satellite and AVE SE SAME VAS data
Period Obligations
 07/31/85-10/30/88 FY88: TOTAL: \$128,983
Prin. Invest. NASA Tech. Officer CASE Category
 Purdom, J. F. MSFC/Green, W. M. 31-Atmos Sci
 Vonder Haar, T. H.
 Pjilck, R. A.

NAG 9-10 Colorado State University 2286
 Life spans of skin fibroblasts from irradiated primates
Period Obligations
 06/16/80-06/01/89 FY88: \$87,000 TOTAL: \$491,000
Prin. Invest. NASA Tech. Officer CASE Category
 Lett, J. JSC/Nachtwey, D. S. 54-Env Biology
 Cox, A. B.
 Lee, A. C.

NAS 9-17168 Colorado State University 2294
 Services of SL-4 payload specialist
Period Obligations
 01/20/84-07/01/89 FY88: \$70,000 TOTAL: \$495,445
Prin. Invest. NASA Tech. Officer CASE Category
 Phillips, R. W. JSC/Womack, W. 49-Engr, NEC

NAG 9-120 Colorado State University 2287
 Hollow cathode plasma coupling study
Period Obligations
 08/01/85-11/01/88 FY88: TOTAL: \$90,096
Prin. Invest. NASA Tech. Officer CASE Category
 Wilbur, P. J. JSC/McCoy, J. E. 46-Mech Engr

NCA 2-181 Colorado State University 2295
 Multi boundary alternating direction for two dimensional flows
Period Obligations
 11/01/86-10/31/88 FY88: \$35,252 TOTAL: \$70,256
Prin. Invest. NASA Tech. Officer CASE Category
 Prenter, P. M. ARC/Murphy, J. 21-Mathematics

NAGW 535 Colorado State University 2288
 Channel patterns on Mars
Period Obligations
 03/01/84-12/31/88 FY88: TOTAL: \$107,711
Prin. Invest. NASA Tech. Officer CASE Category
 Schumm, S. A. HQ-EL/Scott, D. H. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NCC 2-344 Colorado State University 2296
 Remote access to NAS: Supercomputing in a university environment
Period Obligations
 04/01/85-10/14/88 FY88: TOTAL: \$90,826
Prin. Invest. NASA Tech. Officer CASE Category
 Johnson, G. M. ARC/Bailey, F. R. 22-Computer Science

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NGR 06-002-112 Colorado State University 2297
An experimental investigation of hollow cathode discharge start-up and operation

<i>Period</i>	<i>Obligations</i>	
12/21/70-10/26/88	FY88: \$25,494	TOTAL: \$1,314,234
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilbur, P. J.	LERC/Rawlin, V. K.	46-Mech Engr

NGT 00-050-094 Colorado State University 2298
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/86-05/31/89	FY88: \$35,896	TOTAL: \$53,792
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Omi, P. N.	HQ-LE/Owens, F. C.	71-Anthropology

NGT 00-050-370 Colorado State University 2299
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilbur, P. J.	HQ-XE/Owens, F. C.	46-Mech Engr

NGT 06-002-802 Colorado State University 2300
NASA graduate student training program

<i>Period</i>	<i>Obligations</i>	
11/01/84-09/30/88	FY88: \$124,945	TOTAL: \$374,929
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burns, P. J.	HQ-LE/Graves, R. A. HQ-RF/Wander, S. M.	22-Computer Science

NAG 1-600 University of Colorado - Boulder 2301
Innovative methods for the measurement of I* quantum yields and kinetics by diode laser gain-versus-absorption

<i>Period</i>	<i>Obligations</i>	
07/01/85-06/30/87	FY88:	TOTAL: \$109,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leone, S. R.	LARC/Jalufka, N. W. LARC/Conway, E. J.	19-Phys Sci, NEC

NAG 1-640 University of Colorado - Boulder 2302
Parallel software support for computational structural mechanics

<i>Period</i>	<i>Obligations</i>	
06/01/86-05/31/89	FY88: \$48,992	TOTAL: \$114,257
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jordan, H.	LARC/Storaasli, O. O. LARC/Bostic, S. W.	29-Math/Computer, NEC

NAG 1-651 University of Colorado - Boulder 2303
Investigations of the climatology and mechanics of the California stratocumulus cloud deck

<i>Period</i>	<i>Obligations</i>	
03/01/86-02/28/89	FY88: \$50,288	TOTAL: \$102,408
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hanson, H. P.	LARC/McDougal, D. S. LARC/Owens, T. L.	31-Atmos Sci

NAG 1-756 University of Colorado - Boulder 2304
Computational methods and software systems for dynamics and control of large space structures

<i>Period</i>	<i>Obligations</i>	
04/13/87-06/15/89	FY88: \$175,195	TOTAL: \$349,195
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Park, K. C. Felippa, C. A.	LARC/Housner, J. M. LARC/Stroud, W. J.	46-Mech Engr

NAG 1-769 University of Colorado - Boulder 2305
Experimental exploration and control of wave trail induced in the flat plate boundary layer

<i>Period</i>	<i>Obligations</i>	
05/26/87-09/25/88	FY88:	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Freytmuth, P. Biringen, S.	LARC/Maestrello, L.	41-Aero Engr

NAG 1-798 University of Colorado - Boulder 2306
The numerical simulation of transitional flows

<i>Period</i>	<i>Obligations</i>	
08/13/87-11/12/88	FY88:	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Biringen, S.	LARC/Maestrello, L.	41-Aero Engr

NAG 1-802 University of Colorado - Boulder 2307
Implementation of error analysis and mesh refinement procedures

<i>Period</i>	<i>Obligations</i>	
08/01/87-05/31/88	FY88:	TOTAL: \$25,495
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dow, J. O.	LARC/Knight, N. F. LARC/Stroud, W. J.	49-Engr, NEC

NAG 1-880 University of Colorado - Boulder 2308
A contribution to hypersonic design aerodynamics

<i>Period</i>	<i>Obligations</i>	
05/01/88-04/30/89	FY88: \$21,824	TOTAL: \$21,824
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sobieczky, H. Seebass, A. R. Dougherty, F. C.	LARC/Bauer, S. X. LARC/Wood, R. M.	41-Aero Engr

NAG 2-278 University of Colorado - Boulder 2309
Selection principles and pattern formation of fluid mechanics and nonlinear shell theory

<i>Period</i>	<i>Obligations</i>	
03/01/84-06/30/87	FY88:	TOTAL: \$84,161
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sather, D. P.	ARC/Chapman, G. T. ARC/Tobak, M.	41-Aero Engr

NAG 2-504 University of Colorado - Boulder 2310
Pioneer Venus orbiter ultraviolet spectrometer operations and data analysis

<i>Period</i>	<i>Obligations</i>	
10/01/87-10/31/88	FY88: \$220,465	TOTAL: \$220,465
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stewart, A. I.	ARC/Fimmel, R. O. ARC/Craig, R. A.	11-Astronomy

NAG 2-517 University of Colorado - Boulder 2311
Correlative studies of ground based microwave and Pioneer Venus radio occultation measurements of Venus atmospheric temperatures

<i>Period</i>	<i>Obligations</i>	
07/01/88-06/30/89	FY88: \$9,880	TOTAL: \$9,880
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clancy, R. T.	ARC/Lasher, L. E. ARC/Fimmel, R. O.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAG 3-934 University of Colorado - Boulder 2312
Coupled structural thermal phase change and electromagnetic analysis for super conductors
Period *Obligations*
09/21/88-09/20/89 FY88: \$75,000 TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Felippa, C. A. LERC/Chamis, C. C. 41-Aero Engr
Park, K. C. LERC/Melis, M. E.

NAG 5-412 University of Colorado - Boulder 2319
The study of extreme ultraviolet observatory designs
Period *Obligations*
04/01/84-11/30/88 FY88: TOTAL: \$136,731
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cash, W. C. GSFC/Osantowski, J. F. 11-Astronomy
Walter, F.
Snow, T. P.

NAG 5-78 University of Colorado - Boulder 2313
Spectroscopic observations of selected stellar systems
Period *Obligations*
07/01/80-08/31/89 FY88: \$56,900 TOTAL: \$430,260
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garmany, K. GSFC/Kondo, Y. 11-Astronomy
Henrichs, H. F.
Massey, P.

NAG 5-429 University of Colorado - Boulder 2320
Investigation of variable star asymmetries
Period *Obligations*
07/01/84-08/31/89 FY88: \$53,220 TOTAL: \$169,391
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walter, F. M. GSFC/Kondo, Y. 11-Astronomy
Brown, A.
Ayes, T. R.

NAG 5-82 University of Colorado - Boulder 2314
International Ultraviolet Explorer (IUE) studies of cool stars
Period *Obligations*
07/01/80-10/31/88 FY88: \$16,396 TOTAL: \$656,016
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Linsky, J. L. GSFC/Kondo, Y. 11-Astronomy
Neff, J. E.
Bookbinder, J.

NAG 5-433 University of Colorado - Boulder 2321
Ultraviolet spectra of astronomical sources
Period *Obligations*
08/01/84-11/30/89 FY88: \$8,300 TOTAL: \$127,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fesen, R. A. GSFC/Kondo, Y. 11-Astronomy
Hamilton, A. J.
Leventhal, M.

NAG 5-96 University of Colorado - Boulder 2315
Study of reflection grating spectrometers for X-ray astronomy
Period *Obligations*
09/01/80-09/30/88 FY88: \$111,442 TOTAL: \$1,488,056
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cash, W. C. GSFC/Early, L. J. 11-Astronomy
GSFC/Pless, R. H.

NAG 5-485 University of Colorado - Boulder 2322
Studies of polar motion, Earth rotation and plate motion
Period *Obligations*
12/20/84-02/28/89 FY88: \$77,835 TOTAL: \$285,107
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wahr, J. GSFC/Frey, H. V. 32-Geological Sci

NAG 5-193 University of Colorado - Boulder 2316
Spectroscopic studies of interstellar matter and stellar mass loss
Period *Obligations*
07/01/81-08/31/89 FY88: \$30,000 TOTAL: \$419,524
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shull, J. M. GSFC/Kondo, Y. 11-Astronomy
Voit, G. M.

NAG 5-513 University of Colorado - Boulder 2323
X ray bright points on the quiet Sun and rapid ultraviolet brightenings in active regions
Period *Obligations*
03/15/85-08/14/87 FY88: TOTAL: \$84,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Toomre, J. GSFC/Bullock, G. D. 11-Astronomy
Gebbie, K. B.

NAG 5-199 University of Colorado - Boulder 2317
International Ultraviolet Experiment studies
Period *Obligations*
07/15/81-08/31/89 FY88: \$96,800 TOTAL: \$432,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ayes, T. R. GSFC/Kondo, Y. 11-Astronomy
Hawley, S. L.
Brown, A.

NAG 5-633 University of Colorado - Boulder 2324
Lasp coronal EUV spectrometer
Period *Obligations*
01/01/86-11/30/88 FY88: \$350,000 TOTAL: \$1,060,923
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rottman, G. J. GSFC/Early, L. J. 13-Physics
GSFC/Pless, R. H.

NAG 5-350 University of Colorado - Boulder 2318
Analysis of selected symbiotic stars
Period *Obligations*
08/01/83-10/31/89 FY88: \$38,201 TOTAL: \$143,176
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brugal, E. W. GSFC/Kondo, Y. 11-Astronomy
Wilson, L. A.

NAG 5-797 University of Colorado - Boulder 2325
The winds of high luminosity late type bright stars and supergrants
Period *Obligations*
06/15/86-06/14/89 FY88: TOTAL: \$38,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carpenter, K. G. GSFC/Kondo, Y. 11-Astronomy
Brown, A.
Linsky, J.

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAG 5-809 University of Colorado - Boulder 2326
 Ultraviolet observations of anomolous X ray selected stars
Period Obligations
 07/15/86-08/14/89 FY88: TOTAL: \$30,854
Prin. Invest. NASA Tech. Officer CASE Category
 Stocke, J. T. GSFC/Kondo, Y. 11-Astronomy
 Malkan, M.
 Polidan, R.

NAG 5-816 University of Colorado - Boulder 2327
 Fundamental propective of the eg andromedae system derived from high dispersion spectra at opposite quadrants
Period Obligations
 07/15/86-08/15/89 FY88: \$12,500 TOTAL: \$48,143
Prin. Invest. NASA Tech. Officer CASE Category
 Stencil, R. E. GSFC/Kondo, Y. 11-Astronomy
 Pesce, J. E.
 Dachs, J.

NAG 5-817 University of Colorado - Boulder 2328
 The influence of the solar wind on outer planet aurorae
Period Obligations
 07/15/86-08/14/89 FY88: \$28,800 TOTAL: \$82,951
Prin. Invest. NASA Tech. Officer CASE Category
 Skinner, T. E. GSFC/Kondo, Y. 11-Astronomy

NAG 5-828 University of Colorado - Boulder 2329
 Ultraviolet observations of the tomography of the Rosette nebula
Period Obligations
 08/01/86-09/30/87 FY88: TOTAL: \$9,375
Prin. Invest. NASA Tech. Officer CASE Category
 Van Buren, D. GSFC/Kondo, Y. 11-Astronomy
 Bergoffen, M.

NAG 5-833 University of Colorado - Boulder 2330
 Spectrophotometry of selected emission line stars in the large Magellanic cloud
Period Obligations
 08/15/86-09/14/89 FY88: TOTAL: \$39,305
Prin. Invest. NASA Tech. Officer CASE Category
 Bohannan, B. GSFC/Kondo, Y. 11-Astronomy

NAG 5-882 University of Colorado - Boulder 2331
 Algorithm validation of sea ice concentration multigor ice traction and Ice edge location
Period Obligations
 07/01/87-10/31/88 FY88: \$14,324 TOTAL: \$120,272
Prin. Invest. NASA Tech. Officer CASE Category
 Steffen, K. GSFC/Cavalieri, D. J. 33-Oceanography
 Barry, R. G.

NAG 5-898 University of Colorado - Boulder 2332
 Cloud cover determination in polar regions from satellite data
Period Obligations
 05/01/87-08/31/89 FY88: \$86,133 TOTAL: \$171,409
Prin. Invest. NASA Tech. Officer CASE Category
 Barry, R. G. GSFC/Cochalan, R. 31-Atmos Sci

NAG 5-904 University of Colorado - Boulder 2333
 Aircraft investigation of boundary layer structure and turbulence during fife
Period Obligations
 05/01/87-05/31/89 FY88: \$67,000 TOTAL: \$176,365
Prin. Invest. NASA Tech. Officer CASE Category
 Grossman, R. L. GSFC/Wetzel, P. J. 39-Env Sci, NEC
 GSFC/Hall, F.

NAG 5-930 University of Colorado - Boulder 2334
 Special sensor microwave imager validation using NOAA data
Period Obligations
 06/14/87-10/14/88 FY88: \$14,185 TOTAL: \$78,282
Prin. Invest. NASA Tech. Officer CASE Category
 Emery, W. J. GSFC/Cavalieri, D. J. 33-Oceanography

NAG 5-932 University of Colorado - Boulder 2335
 Solar fluxes from the Sun as a star and correlation with magnetic flux
Period Obligations
 09/01/87-08/31/88 FY88: TOTAL: \$29,521
Prin. Invest. NASA Tech. Officer CASE Category
 Schrijver, C. J. GSFC/Bullock, G. D. 19-Phys Sci, NEC
 Linsky, J. L. GSFC/Gurman, J. B.

NAG 5-936 University of Colorado - Boulder 2336
 Selected solar line profiles
Period Obligations
 07/01/87-06/30/88 FY88: TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
 Gladstone, G. R. GSFC/Bullock, G. D. 19-Phys Sci, NEC
 GSFC/Gurman, J. B.

NAG 5-948 University of Colorado - Boulder 2337
 Simultaneous ultraviolet extreme ultraviolet observations of an active cool star and hot white dwarf
Period Obligations
 07/15/87-01/14/89 FY88: TOTAL: \$13,600
Prin. Invest. NASA Tech. Officer CASE Category
 Cash, W. C. GSFC/Kondo, Y. 11-Astronomy
 Walter, F. M.
 Ayres, T. R.

NAG 5-960 University of Colorado - Boulder 2338
 Participation in astromag studies
Period Obligations
 08/01/87-01/31/89 FY88: TOTAL: \$5,377
Prin. Invest. NASA Tech. Officer CASE Category
 Jordan, S. GSFC/Ormes, J. A. 13-Physics

NAG 5-963 University of Colorado - Boulder 2339
 Low dispersion observations of bright stars
Period Obligations
 12/01/87-11/30/88 FY88: \$18,400 TOTAL: \$18,400
Prin. Invest. NASA Tech. Officer CASE Category
 Fitzpatrick, E. L. GSFC/Kondo, Y. 11-Astronomy
 Bless, R. C.
 Pitts, R. E.

NAG 5-984 University of Colorado - Boulder 2340
 Ultraviolet observations of selected astronomical sources
Period Obligations
 09/01/87-08/31/88 FY88: TOTAL: \$29,100
Prin. Invest. NASA Tech. Officer CASE Category
 Bookbinder, J. GSFC/Kondo, Y. 11-Astronomy

NAG 5-985 University of Colorado - Boulder 2341
 Ultraviolet observations of selected astronomical sources
Period Obligations
 09/01/87-08/31/89 FY88: \$78,800 TOTAL: \$135,000
Prin. Invest. NASA Tech. Officer CASE Category
 Brown, A. GSFC/Kondo, Y. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAG 5-1000 University of Colorado - Boulder 2342
Pulse phase spectroscopy of a selected massive X ray benoig
Period Obligations
09/15/87-09/14/88 FY88: TOTAL: \$15,600
Prin. Invest. NASA Tech. Officer CASE Category
McCray, R. GSFC/Kondo, Y. 11-Astronomy
Kallman, T.
Voit, M.

NAG 5-1016 University of Colorado - Boulder 2343
Walf royet stars in the Magellanic clouds
Period Obligations
10/15/87-10/14/89 FY88: \$28,406 TOTAL: \$47,606
Prin. Invest. NASA Tech. Officer CASE Category
Conti, P. S. GSFC/Kondo, Y. 11-Astronomy
Garmany, C. D.

NAG 5-1089 University of Colorado - Boulder 2344
Ultraviolet spectra Seyfert galaxies-gex enhancement
Period Obligations
10/01/88-09/30/89 FY88: \$25,695 TOTAL: \$25,695
Prin. Invest. NASA Tech. Officer CASE Category
Edelson, R. GSFC/Kondo, Y. 11-Astronomy

NAG 8-508 University of Colorado - Boulder 2345
Low mass pre-main sequence stars near dark clouds
Period Obligations
01/01/85-06/30/88 FY88: TOTAL: \$53,555
Prin. Invest. NASA Tech. Officer CASE Category
Walter, F. M. MSFC/Harper, B. 11-Astronomy

NAG 8-575 University of Colorado - Boulder 2346
Optical identifications for a complete sample of faint X ray sources the
expanded Einstein medium sensitivity survey
Period Obligations
04/01/86-12/31/88 FY88: TOTAL: \$34,044
Prin. Invest. NASA Tech. Officer CASE Category
Stocke, J. T. MSFC/Harper, B. 11-Astronomy
Morris, S.

NAG 8-596 University of Colorado - Boulder 2347
Are the coronae of late type stars heated by microflares or a steady
mechanism the critical test of comparing soft X-ray of old DM with
young DME stars
Period Obligations
07/01/86-06/30/87 FY88: TOTAL: \$25,295
Prin. Invest. NASA Tech. Officer CASE Category
Linsky, J. L. MSFC/Potter, P. Y. 11-Astronomy

NAG 8-651 University of Colorado - Boulder 2348
X ray ultraviolet spectra of the CFA Seyfert galaxies
Period Obligations
07/01/87-06/30/89 FY88: \$29,153 TOTAL: \$52,766
Prin. Invest. NASA Tech. Officer CASE Category
Edelson, R. A. MSFC/Harper, B. 11-Astronomy

NAG 8-658 University of Colorado - Boulder 2349
A HEAO EXOSAT archive study of X ray selected B 1 lacerta objects
Period Obligations
09/01/87-03/01/89 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Stocke, J. T. MSFC/Harper, B. A. 11-Astronomy

NAG 8-744 University of Colorado - Boulder 2350
Study of coronal temperatures of cool stars
Period Obligations
08/01/88-07/31/89 FY88: \$26,543 TOTAL: \$26,543
Prin. Invest. NASA Tech. Officer CASE Category
Linsky, J. L. MSFC/Harper, B. A. 11-Astronomy

NAG 8-745 University of Colorado - Boulder 2351
X ray analyses of X ray discovered low mass pre main sequence stars
Period Obligations
08/01/88-07/31/89 FY88: \$63,051 TOTAL: \$63,051
Prin. Invest. NASA Tech. Officer CASE Category
Walter, F. M. MSFC/Harper, B. A. 11-Astronomy

NAGW 91 University of Colorado - Boulder 2352
Turbulence and wave-particle interactions in solar-terrestrial plasmas
Period Obligations
07/01/80-10/31/88 FY88: \$245,000 TOTAL: \$1,973,500
Prin. Invest. NASA Tech. Officer CASE Category
Dulk, G. A. HQ-EE/Butler, D. M. 11-Astronomy
Toomre, J. GSFC/Curtis, S. A.

NAGW 197 University of Colorado - Boulder 2353
Theoretical research programs in physics at planetary atmospheres,
radiative transfer theory and data interpretation
Period Obligations
07/01/81-08/31/89 FY88: \$45,500 TOTAL: \$314,633
Prin. Invest. NASA Tech. Officer CASE Category
Hord, C. W. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 389 University of Colorado - Boulder 2354
Theoretical research in physics of planetary atmospheres; Global studies
of atmospheric constituents and dynamics
Period Obligations
11/01/82-09/30/89 FY88: \$143,374 TOTAL: \$549,278
Prin. Invest. NASA Tech. Officer CASE Category
Esposito, L. HQ-EL/Fox, K. 31-Atmos Sci
Stewart, I. HQ-EL/Quaide, W. L.

NAGW 552 University of Colorado - Boulder 2355
Bahaviour of water on Mars
Period Obligations
04/01/84-12/31/88 FY88: \$67,801 TOTAL: \$208,628
Prin. Invest. NASA Tech. Officer CASE Category
Jakosky, B. M. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 641 University of Colorado - Boulder 2356
Cryospheric data management system for DMSP SSM/I data
management
Period Obligations
06/01/84-09/30/89 FY88: \$346,181 TOTAL: \$1,328,043
Prin. Invest. NASA Tech. Officer CASE Category
Barry, R. G. HQ-EE/Thomas, R. H. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 766 University of Colorado - Boulder 2357
Theory of spectra formation in astrophysical systems
Period Obligations
07/05/85-02/28/89 FY88: \$252,425 TOTAL: \$967,425
Prin. Invest. NASA Tech. Officer CASE Category
Schull, J. M. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-EZ/Bunner, A. N.

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAGW 769	University of Colorado - Boulder	2358	NAGW 934	University of Colorado - Boulder	2366
Studies of the dynamics of outer planet rings			Fine scale turbulence structure		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/85-10/30/88	FY88: \$34,000	TOTAL: \$118,934	07/01/86-12/31/88	FY88: \$84,000	TOTAL: \$200,169
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Esposito, L. W.	HQ-EL/Underwood, J. R.	32-Geological Sci	Grossman, R. L.	HQ-EE/Miller, T. L.	31-Atmos Sci
	HQ-EL/Boyce, J. M.			HQ-EE/Prather, M. J.	
NAGW 771	University of Colorado - Boulder	2359	NAGW 951	University of Colorado - Boulder	2367
Remote sensing analysis of Mars			Center for low gravity fluid mechanics and transport phenomena		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/85-12/31/88	FY88: \$25,000	TOTAL: \$60,838	09/01/86-03/31/89	FY88: \$450,000	TOTAL: \$1,200,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jakosky, B.	HQ-EL/Underwood, J. R.	32-Geological Sci	Kassoy, D. R.	HQ-EN/Naumann, R. J.	19-Phys Sci, NEC
	HQ-EL/Boyce, J. M.		Morgenthaler, G.	HQ-EN/Crouch, R. K.	
NAGW 772	University of Colorado - Boulder	2360	NAGW 998	University of Colorado - Boulder	2368
Investigation of irreversible material exchange induced by planetary waves			Wave generation and particle transport in the plasma sheet and the particle layer		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/85-10/31/88	FY88: \$261,033	TOTAL: \$944,833	10/01/86-12/31/88	FY88: \$66,104	TOTAL: \$122,032
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Salby, M. L.	HQ-EE/Miller, T. L.	31-Atmos Sci	Dusenberg, P. B.	HQ-EE/Theis, R. F.	13-Physics
	HQ-EE/Prather, M. J.		Speiser, T.	HQ-EE/Eastman, T. E.	
NAGW 793	University of Colorado - Boulder	2361	NAGW 1002	University of Colorado - Boulder	2369
Temperature dependence of the rate constant and product channels for the bro and cio reaction			Global surface based cloud observations for ISCCP		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/85-08/31/86	FY88:	TOTAL: \$48,073	01/01/87-12/31/88	FY88: \$56,592	TOTAL: \$108,075
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Birks, J. W.	HQ-EE/Smith, M. A.	31-Atmos Sci	London, J.	HQ-EE/Schiffer, R. A.	31-Atmos Sci
	HQ-EE/Demore, W. B.		Warren, S.	HQ-EE/Theon, J. S.	
NAGW 822	University of Colorado - Boulder	2362	NAGW 1054	University of Colorado - Boulder	2370
Laser gravitational observation in space			Studies of magnetopause structure		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/85-11/30/88	FY88: \$80,543	TOTAL: \$245,883	03/15/87-07/31/89	FY88: \$44,020	TOTAL: \$82,418
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bender, P. L.	HQ-E/Alexander, J. K.	13-Physics	Speiser, T.	HQ-ES/Mellott, M. M.	13-Physics
	HQ-EP/Konkel, R. M.			HQ-EE/Eastman, T. E.	
NAGW 862	University of Colorado - Boulder	2363	NAGW 1095	University of Colorado - Boulder	2371
Transport and photochemistry of hydrogen species in the middle atmosphere			Low cost end to end data system research		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/86-12/31/87	FY88:	TOTAL: \$78,901	06/01/87-08/31/88	FY88: \$5,000	TOTAL: \$101,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Solomon, S.	HQ-EE/Jackman, C. H.	31-Atmos Sci	Hansen, E. R.	HQ-EI/Villasenor, A.	29-Math/Computer, NEC
	HQ-EE/Butler, D. M.		Davis, R. L.		
NAGW 890	University of Colorado - Boulder	2364	NAGW 1100	University of Colorado - Boulder	2372
Analysis of SME airglows and odd oxygen in the upper mesosphere and lower thermosphere			Fifth Cambridge workshop on cool stars stellar systems and the Sun		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/86-06/14/89	FY88:	TOTAL: \$197,634	06/01/87-05/31/88	FY88:	TOTAL: \$16,301
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thomas, R. J.	HQ-EE/Jackman, C. H.	31-Atmos Sci	Stencel, R. E.	HQ-EZ/Ahluwalia, H.	13-Physics
	HQ-EE/Butler, D. M.				
NAGW 904	University of Colorado - Boulder	2365	NAGW 1105	University of Colorado - Boulder	2373
Thermospheric and mesospheric nitric oxide during high solar activity			Research on telecommunications policy trends and technology		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-02/28/89	FY88: \$70,000	TOTAL: \$195,000	06/01/87-04/30/89	FY88: \$174,573	TOTAL: \$292,988
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rusch, D. W.	HQ-EE/Miller, T. L.	31-Atmos Sci	Byerly, R.	HQ-EC/Arnold, R. J.	99-Multi-Discip
	HQ-EE/Prather, M. J.		Barnes, F. S.		
			June, D.		

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAGW 1110 University of Colorado - Boulder 2374
Algorithm validation for the along track scanning radio meter participation in the cooperative program with German scientists
Period *Obligations*
06/01/87-05/31/89 FY88: \$54,838 TOTAL: \$84,838
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emery, W. J. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1121 University of Colorado - Boulder 2375
Science and applications information systems studies
Period *Obligations*
06/01/87-08/31/89 FY88: \$125,000 TOTAL: \$325,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hansen, E. R. HQ-EC/Schmerling, E. 22-Computer Science
Davis, R. L. HQ-EC/Bredenkamp, J.
Ludwig, G. H.

NAGW 1124 University of Colorado - Boulder 2376
Altimetry data assimilation and numerical ocean modeling
Period *Obligations*
07/01/87-08/31/89 FY88: \$163,304 TOTAL: \$275,346
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Born, G. HQ-EE/Richman, J. G. 33-Oceanography
Leben, R. HQ-EE/Wilson, W. S.

NAGW 1138 University of Colorado - Boulder 2377
Space time variability of tropical convection
Period *Obligations*
07/15/87-10/19/89 FY88: \$140,000 TOTAL: \$280,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Salby, M. HQ-EE/Butler, D. M. 31-Atmos Sci
HQ-EE/Theon, J. S.

NAGW 1143 University of Colorado - Boulder 2378
Evaluation of the airborne visible infrared imaging spectrometer for mapping subtle lithological variation
Period *Obligations*
07/01/87-12/31/88 FY88: \$60,102 TOTAL: \$90,915
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kruse, F. A. HQ-EE/Wickland, D. E. 32-Geological Sci
Knepper, D. H. HQ-EE/Ruzek, M.
Lee, K.

NAGW 1176 University of Colorado - Boulder 2379
Magnetotail particle dynamics and curoral region interactions
Period *Obligations*
09/01/87-12/31/88 FY88: TOTAL: \$69,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Speiser, T. W. HQ-EE/Theis, R. F. 13-Physics
HQ-EE/Eastman, T. E.

NAGW 1183 University of Colorado - Boulder 2380
Mineralogy and composition of Archean crust Greenland a pilot study
Period *Obligations*
06/01/87-05/31/88 FY88: \$36,177 TOTAL: \$36,177
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goetz, A. F. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Murphy, R. E.

NAGW 1191 University of Colorado - Boulder 2381
A multidisciplinary research program in support of the Earth observing system
Period *Obligations*
07/01/87-06/30/89 FY88: \$250,000 TOTAL: \$525,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chase, R. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC

NAGW 1197 University of Colorado - Boulder 2382
Center for the commercial development of space
Period *Obligations*
10/01/87-10/31/89 FY88: \$1,091,000 TOTAL: \$1,091,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Luttges, M. HQ-IC/Oran, W. A. 59-Life Sci, NEC
Berryman, J. HQ-IC/Brown, J. A.

NAGW 1228 University of Colorado - Boulder 2383
Microwave spectroscopic studies of planetary atmospheres
Period *Obligations*
10/01/87-12/31/88 FY88: \$19,879 TOTAL: \$19,879
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clancy, R. T. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1263 University of Colorado - Boulder 2384
Cassini ultraviolet spectrometer
Period *Obligations*
02/01/88-01/31/89 FY88: \$49,940 TOTAL: \$49,940
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Esposito, L. W. HQ-EL/Evans, L. G. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1264 University of Colorado - Boulder 2385
Image display at the Colorado center for astrodynamics research and development of satellite image display software
Period *Obligations*
01/01/88-12/31/88 FY88: \$38,000 TOTAL: \$38,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emery, W. J. HQ-EE/Njoku, E. G. 33-Oceanography
Born, G. H. HQ-EE/Wilson, W. S.

NAGW 1293 University of Colorado - Boulder 2386
Understanding mesozonic tectonics in the eastern basin and range province through a study of the Dolly Varden Mountains Nevada by use of imaging spectrometry
Period *Obligations*
05/01/88-04/30/89 FY88: \$64,200 TOTAL: \$64,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Atkinson, W. W. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Ruzek, M. R.

NAGW 1378 University of Colorado - Boulder 2387
Photometric albedo and thermal studies of Mars
Period *Obligations*
08/01/88-07/31/89 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, S. W. HQ-EL/Underwood, J. R. 32-Geological Sci

NAGW 1387 University of Colorado - Boulder 2388
Evolution of large scale plasma structures in comets kinematics and physics
Period *Obligations*
10/01/88-09/30/89 FY88: \$45,772 TOTAL: \$45,772
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brandt, J. C. HQ-EL/Rahe, J. H. 11-Astronomy

NAGW 1388 University of Colorado - Boulder 2389
Center for space construction
Period *Obligations*
07/01/88-02/28/89 FY88: \$500,000 TOTAL: \$500,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morganthaler, G. W. HQ-RS/Hartman, S. C. 49-Engr, NEC
Sture, S.

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAGW 1415 University of Colorado - Boulder 2390
 Research in geosciences policy
Period *Obligations*
 08/01/88-09/30/88 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Byerly, R. HQ-EE/Butler, D. M. 39-Env Sci, NEC

NAS 5-29174 University of Colorado - Boulder 2398
 Space station command control and interface technology prototyping
Period *Obligations*
 08/08/85-05/08/90 FY88: \$220,000 TOTAL: \$574,364
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hansen, E. R. GSFC/Tong, G. M. 22-Computer Science
 Davis, R. L./Moe, K. L.

NAGW 1440 University of Colorado - Boulder 2391
 Mars dust and atmospheric aerosols USSR Phobos mission participation
Period *Obligations*
 08/01/88-07/31/89 FY88: \$25,344 TOTAL: \$25,344
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Esposito, L. W. HQ-EL/Brinton, H. C. 13-Physics

NAS 5-29323 University of Colorado - Boulder 2399
 Study of constraints on geomagnetic secular variation modeling from electromagnetism and fluid dynamics of the Earth's core
Period *Obligations*
 02/26/86-12/31/87 FY88: TOTAL: \$37,552
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Benton, E. GSFC/Kouns, C. W. 32-Geological Sci
 GSFC/Langel, R. A.

NAG13-9 University of Colorado - Boulder 2392
 A comparative analysis of grid based encoding schemes for use in a geographic information system
Period *Obligations*
 09/22/88-09/30/89 FY88: \$19,720 TOTAL: \$19,720
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hodgson, M. E. NSTL/Davis, B. 39-Env Sci, NEC

NAS 5-29337 University of Colorado - Boulder 2400
 High resolution spectrograph guaranteed time observations
Period *Obligations*
 10/04/86-08/26/91 FY88: \$84,000 TOTAL: \$192,518
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Carpenter, K. GSFC/Vitagliano, H. D. 11-Astronomy

NAS 2-12318 University of Colorado - Boulder 2393
 Pioneer Venus orbiter ultraviolet spectrometer operations and data analysis
Period *Obligations*
 10/01/85-09/30/87 FY88: \$18,088 TOTAL: \$437,158
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stewart, A. I. ARC/Craig, R. A. 11-Astronomy
 ARC/Fimmel, R. O.

NAS 5-29345 University of Colorado - Boulder 2401
 High resolution spectrograph guaranteed time observations
Period *Obligations*
 12/16/86-09/30/91 FY88: \$77,000 TOTAL: \$172,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Walter, F. GSFC/Vitagliano, H. D. 11-Astronomy

NAS 5-27263 University of Colorado - Boulder 2394
 A study of the response of upper atmosphere parameters to variations of solar activity
Period *Obligations*
 07/07/82-02/28/91 FY88: \$114,217 TOTAL: \$309,857
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 London, J. GSFC/Rouzer, L. 31-Atmos Sci

NAS 5-30067 University of Colorado - Boulder 2402
 Remote hitchhiker instrument support environment research
Period *Obligations*
 02/02/87-09/30/88 FY88: \$30,012 TOTAL: \$255,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hansen, E. R. GSFC/Mandl, D. J. 41-Aero Eng

NAS 5-27750 University of Colorado - Boulder 2395
 Solar stellar irradiance comparison experiment (SOLSTICE) for UARS
Period *Obligations*
 10/01/83-12/01/88 FY88: \$974,797 TOTAL: \$5,679,731
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rottman, G. GSFC/Piterski, N. 31-Atmos Sci
 GSFC/Donley, J.

NAS 5-30511 University of Colorado - Boulder 2403
 Scientific support for GHRS N team and science verification/guaranteed time observations
Period *Obligations*
 03/17/88-09/30/93 FY88: \$104,000 TOTAL: \$104,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Brandt, J. C. GSFC/Vitagliano, H. D. 11-Astronomy

NAS 5-28196 University of Colorado - Boulder 2396
 Study of relationship between solar dynamics and g-modes
Period *Obligations*
 08/10/84-02/09/87 FY88: TOTAL: \$37,463
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Blizzard, J. GSFC/Wolff, C. L. 11-Astronomy
 Cox, J. GSFC/Hartle, R. E.

NAS 8-31958 University of Colorado - Boulder 2404
 Study of geophysical fluid dynamics with electro-hydrodynamics polarization forces
Period *Obligations*
 03/26/76-06/30/91 FY88: \$133,981 TOTAL: \$1,380,437
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hart, J. E. MSFC/Hall, G. 31-Atmos Sci
 Toomre, J. MSFC/Fichtl, G. H.

NAS 5-28731 University of Colorado - Boulder 2397
 Operation of the regional data center for IUE users
Period *Obligations*
 04/01/85-03/31/89 FY88: \$128,865 TOTAL: \$502,540
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Snow, T. GSFC/Mead, J. 11-Astronomy
 Brugel, E. M.

NAS 8-35668 University of Colorado - Boulder 2405
 Study entitled particle behavior under low intergranular stresses
Period *Obligations*
 11/02/83-09/30/88 FY88: TOTAL: \$251,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sture, S. MSFC/Gardner, L. B. 39-Env Sci, NEC
 MSFC/Smith, G. T.

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NASW 3711	University of Colorado - Boulder	2406	Low cost end to end satellite data system		
	<i>Period</i>	<i>Obligations</i>			
	03/18/83-04/30/87	FY88:	TOTAL: \$464,599		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Hansen, E.	HQ-EL/Devirian, M.	22-Computer Science		
	Davis, R.				
NASW 4024	University of Colorado - Boulder	2407	Development of a radio impulse detection experiment		
	<i>Period</i>	<i>Obligations</i>			
	11/19/84-12/31/88	FY88: \$47,478	TOTAL: \$171,989		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Warwick, J.	HQ-EL/Mahapy, P.	11-Astronomy		
		HQ-EL/Quaide, W.			
NASW 4091	University of Colorado - Boulder	2408	Solar mesosphere explores satellite mission operations and data analysis		
	<i>Period</i>	<i>Obligations</i>			
	12/01/85-11/30/88	FY88: \$1,199,000	TOTAL: \$4,872,971		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Barth, C.	HQ-EE/Esenwein, G.	31-Atmos Sci		
		HQ-EE/Tilford, S. G.			
NASW 4115	University of Colorado - Boulder	2409	Development of two-dimensional microchannel array detectors using codcon readout anodes		
	<i>Period</i>	<i>Obligations</i>			
	10/01/85-09/30/88	FY88:	TOTAL: \$191,740		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Lawrence, E.	HQ-EZ/Stachnik, R. V.	11-Astronomy		
		HQ-EZ/Bogges, N.			
NCA 2-106	University of Colorado - Boulder	2410	The use of detrended correspondence analysis for interpreting MSS data		
	<i>Period</i>	<i>Obligations</i>			
	03/15/86-03/31/88	FY88:	TOTAL: \$30,477		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Walker, D. A.	ARC/Gaydos, L.	39-Env Sci, NEC		
		ARC/Acevedo, W.			
NCA 2-219	University of Colorado - Boulder	2411	Unsteady three dimensional multiple region analysis		
	<i>Period</i>	<i>Obligations</i>			
	06/01/87-05/31/89	FY88: \$38,342	TOTAL: \$68,743		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Dougherty, F. C.	ARC/Van Dalsem, W. R.	41-Aero Engr		
NCA 2-336	University of Colorado - Boulder	2412	The flow about a V/STOL aircraft hovering in ground effect with a crossflow		
	<i>Period</i>	<i>Obligations</i>			
	03/01/89-02/28/91	FY88: \$38,805	TOTAL: \$38,805		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Dougherty, F. C.	ARC/Van Dalsem, W. R.	41-Aero Engr		
NCC 2-440	University of Colorado - Boulder	2413	Hypersonic flow analysis		
	<i>Period</i>	<i>Obligations</i>			
	09/01/86-09/30/88	FY88: \$35,000	TOTAL: \$65,562		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Chow, C. Y.	ARC/Holst, T. L.	41-Aero Engr		
		ARC/Chaussee, D. S.			
NCC 2-473	University of Colorado - Boulder	2414	Transonic store separation		
	<i>Period</i>	<i>Obligations</i>			
	04/01/87-04/30/89	FY88: \$25,000	TOTAL: \$50,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Dougherty, F. C.	ARC/Chapman, G. T.	41-Aero Engr		
NCC 2-508	University of Colorado - Boulder	2415	Transonic aerolastic analysis for rotor blades		
	<i>Period</i>	<i>Obligations</i>			
	10/01/87-10/31/88	FY88: \$40,000	TOTAL: \$40,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Chow, C. Y.	ARC/Chang, I. C.	41-Aero Engr		
NGL 06-003-057	University of Colorado - Boulder	2416	Basic research in solar physics		
	<i>Period</i>	<i>Obligations</i>			
	09/05/87-10/31/88	FY88: \$88,000	TOTAL: \$1,823,758		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Linsky, J. L.	HQ-EZ/Ahluwalia, H. S.	13-Physics		
NGT 00-050-030	University of Colorado - Boulder	2417	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	06/01/86-05/31/89	FY88: \$18,000	TOTAL: \$54,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Born, G. H.	HQ-LE/Owens, F. C.	41-Aero Engr		
NGT 00-050-043	University of Colorado - Boulder	2418	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	08/27/86-08/25/89	FY88: \$36,000	TOTAL: \$54,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Shull, J. M.	HQ-LE/Owens, F. C.	13-Physics		
NGT 00-050-067	University of Colorado - Boulder	2419	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	06/01/86-05/31/89	FY88: \$18,000	TOTAL: \$54,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Culp, R. D.	HQ-LE/Owens, F. C.	41-Aero Engr		
NGT 00-050-164	University of Colorado - Boulder	2420	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	06/01/87-05/31/88	FY88:	TOTAL: \$18,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Dougherty, F. C.	HQ-XE/Owens, F. C.	41-Aero Engr		
NGT 00-050-236	University of Colorado - Boulder	2421	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	08/19/87-08/18/89	FY88: \$36,000	TOTAL: \$36,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Zweibel, E. G.	HQ-XE/Owens, F. C.	13-Physics		
NGT 00-050-246	University of Colorado - Boulder	2422	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	09/01/87-08/31/89	FY88: \$36,000	TOTAL: \$36,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Born, G. H.	HQ-XE/Owens, F. C.	41-Aero Engr		

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NGT 00-050-254 University of Colorado - Boulder 2423
 NASA graduate student researchers program
Period Obligations
 10/01/88-09/30/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Park, K. C. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 06-003-800 University of Colorado - Boulder 2432
 NASA graduate student researchers program
Period Obligations
 08/26/85-08/25/88 FY88: \$18,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
 Shull, J. M. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-279 University of Colorado - Boulder 2424
 NASA graduate student researchers program
Period Obligations
 08/26/88-08/25/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Hamilton, A. J. HQ-EZ/Nagy, T. 11-Astronomy

NSG 5103 University of Colorado - Boulder 2433
 Rocket research in the ultraviolet airglow and aurora of planetary atmospheres
Period Obligations
 02/01/76-11/30/88 FY88: \$199,000 TOTAL: \$3,202,407
Prin. Invest. NASA Tech. Officer CASE Category
 Barth, C. A. GSFC/Early, L. J. 19-Phys Sci, NEC
 Hathaway, D. D. GSFC/Pless, R. H.

NGT 00-050-326 University of Colorado - Boulder 2425
 NASA graduate student researchers program
Period Obligations
 10/01/88-09/30/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Esposito, L. HQ-XE/Owens, F. C. 13-Physics

NSG 5153 University of Colorado - Boulder 2434
 Research of observed and theoretical variations of atmospheric ozone
Period Obligations
 01/17/77-12/31/88 FY88: \$58,000 TOTAL: \$783,728
Prin. Invest. NASA Tech. Officer CASE Category
 London, J. GSFC/Mc peters, R. 31-Atmos Sci
 Thomas, G. E. GSFC/Butler, D. M.

NGT 00-050-329 University of Colorado - Boulder 2426
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Rosborough, G. W. HQ-XE/Owens, F. C. 41-Aero Engr

NSG 5300 University of Colorado - Boulder 2435
 Research of stellar wind velocity in Alpha Cam using ultraviolet data from the International Ultraviolet Explorer (IUE)
Period Obligations
 09/15/78-08/31/89 FY88: \$68,261 TOTAL: \$694,598
Prin. Invest. NASA Tech. Officer CASE Category
 Snow, T. P., Jr. GSFC/Kondo, Y. 11-Astronomy
 Joseph, C. L.
 Jenkins, E. B.

NGT 00-050-336 University of Colorado - Boulder 2427
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Born, G. H. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 00-050-367 University of Colorado - Boulder 2428
 NASA graduate student researchers program
Period Obligations
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Davis, R. H. HQ-XE/Owens, F. C. 43-Chem Engr

NSG 5303 University of Colorado - Boulder 2436
 Ultraviolet measurements with high spectral resolution
Period Obligations
 09/15/78-11/14/88 FY88: \$415,953 TOTAL: \$3,011,689
Prin. Invest. NASA Tech. Officer CASE Category
 Snow, T. P., Jr. GSFC/Early, L. J. 11-Astronomy
 McClintock, W. E. GSFC/Pless, R. H.
 Cash, W. C.

NGT 00-070-001 University of Colorado - Boulder 2429
 Graduate student researchers underrepresented minority focus program
Period Obligations
 01/01/87-12/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Sture, S. HQ-LE/Owens, F. C. 44-Civil Engr

NSG 7128 University of Colorado - Boulder 2437
 Studies of X-ray ultraviolet and optical emission from galactic X-ray sources
Period Obligations
 03/01/75-12/31/88 FY88: \$60,000 TOTAL: \$675,990
Prin. Invest. NASA Tech. Officer CASE Category
 McCray, R. HQ-EZ/Kaluzienski, L. 11-Astronomy
 Shull, J. M. HQ-EZ/Weiler, E. J.

NGT 00-070-005 University of Colorado - Boulder 2430
 Graduate student researchers underrepresented minority focus program
Period Obligations
 01/01/87-12/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Bohannon, B. HQ-LE/Owens, F. C. 31-Atmos Sci

NGT 00-070-089 University of Colorado - Boulder 2431
 Graduate student researchers underrepresented minority focus program
Period Obligations
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Luttgies, M. W. HQ-XE/Owens, F. C. 41-Aero Engr

NSG 7287 University of Colorado - Boulder 2438
 Study of the solar corona using radio observation
Period Obligations
 07/01/76-10/31/88 FY88: \$65,000 TOTAL: \$597,000
Prin. Invest. NASA Tech. Officer CASE Category
 Dulk, G. A. HQ-ES/Ahluwalia, H. S. 13-Physics
 HQ-EZ/Spicer, D. S.

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NSG 7511 University of Colorado - Boulder 2439
Basic research in solar physics: Energy transport in the solar envelope and atmosphere
Period *Obligations*
10/01/78-11/30/88 FY88: \$115,000 TOTAL: \$775,576
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Toomre, J. HQ-EZ/Spicer, D. S. 13-Physics
Gebbie, K. HQ-EZ/Bohlin, J. D.

NSG 7626 University of Colorado - Boulder 2440
High resolution spectrophotometric observations of interstellar absorption lines
Period *Obligations*
08/01/79-10/31/87 FY88: TOTAL: \$254,964
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Snow, T. P. HQ-EZ/Stencel, R. E. 11-Astronomy
HQ-EZ/Bogges, N. W.

NGT 00-050-318 University of Colorado - Denver 2441
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stedman, D. H. HQ-XE/Owens, F. C. 12-Chemistry

NAG 2-351 University of Denver 2442
Infrared measurements of atmospheric constituents
Period *Obligations*
06/01/85-10/31/88 FY88: TOTAL: \$755,986
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. ARC/Vedder, J. F. 31-Atmos Sci

NAG 2-458 University of Denver 2443
Counting condensation nuclei in the Antarctic ozone mission
Period *Obligations*
05/01/87-12/31/89 FY88: \$75,500 TOTAL: \$121,851
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, J. C. ARC/Wegener, S. S. 31-Atmos Sci
ARC/Condon, B. C.

NAG 5-845 University of Denver 2444
Direct measurements of the chemistry of stratospheric oxides of nitrogen
Period *Obligations*
10/01/86-09/30/87 FY88: TOTAL: \$80,890
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stedman, D. H. GSFC/Heaps, W. S. 12-Chemistry
Ray, J. D.
Armstrong, J. A.

NAS 1-16306 University of Denver 2445
Science support for Earth radiation budget satellite/stratospheric aerosol and gas experiment
Period *Obligations*
08/22/80-06/12/90 FY88: \$15,000 TOTAL: \$274,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. LARC/McMaster, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NAS 5-29311 University of Denver 2446
Measurement of X-rays and energetic electrons in VLF trigger experiments
Period *Obligations*
01/28/86-01/27/89 FY88: \$36,975 TOTAL: \$98,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barcus, J. GSFC/Goldberg, R. 11-Astronomy

NCC 1-48 University of Denver 2447
Collaborative study of high resolution infrared atmospheric spectra
Period *Obligations*
12/01/80-11/30/88 FY88: TOTAL: \$211,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldman, A. LARC/Ringland, C. P. 31-Atmos Sci
Murcray, D. G. LARC/Seals, R. K.

NCC 2-470 University of Denver 2448
Counting condensation nuclei in the last year of the stratosphere troposphere exchange project
Period *Obligations*
02/01/87-12/31/88 FY88: \$34,500 TOTAL: \$64,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, J. C. ARC/Wegener, S. S. 31-Atmos Sci
ARC/Ferry, G. V.

NGT 00-050-013 University of Denver 2449
NASA graduate student researchers program
Period *Obligations*
07/01/86-06/30/88 FY88: TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stedman, D. H. HQ-LE/Owens, F. C. 12-Chemistry

NSG 1432 University of Denver 2450
Ground based solar spectral studies
Period *Obligations*
07/11/77-04/10/89 FY88: \$79,878 TOTAL: \$744,290
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. LARC/Seals, R. K., Jr. 39-Env Sci, NEC
LARC/Rinsland, C. P.

NCC 2-276 University of Southern Colorado 2451
Independent safety analysis of the x-wing digital control systems
Period *Obligations*
11/01/83-09/30/89 FY88: \$71,283 TOTAL: \$336,365
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, W. R. ARC/Corliss, L. D. 41-Aero Engr
Karmarkar, J. ARC/Lane, J. W.

NCC 2-373 University of Southern Colorado 2452
Investigation of advanced failure modes analyses and test for Harrier digital avionics
Period *Obligations*
10/01/85-10/31/88 FY88: \$146,702 TOTAL: \$464,769
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, W. R. ARC/Holland, V. B. 49-Engr, NEC
Lee, M. ARC/Yee, R.

CONNECTICUT

NAS 2-12490 Saint Joseph College - Connecticut 2453
Stratosphere troposphere mass exchange study
Period *Obligations*
10/01/86-10/01/87 FY88: TOTAL: \$45,768
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Robinson, G. D. ARC/Chan, K. R. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
CONNECTICUT (Continued)**

NAG 2-318 University of Connecticut 2454
Multivariable second order dual controller for helicopter multi-cyclic control of helicopter vibration
Period *Obligations*
10/01/84-12/31/86 FY88: TOTAL: \$81,500
Prin. Invest. NASA Tech. Officer CASE Category
Bar-shalom, Y. ARC/Warmbrodt, W. 41-Aero Engr
Molusis, J. ARC/Stephen, J.

NAG 3-484 University of Connecticut 2455
Fluid mechanics of turbine scroll ducts
Period *Obligations*
11/01/83-08/30/87 FY88: TOTAL: \$158,583
Prin. Invest. NASA Tech. Officer CASE Category
Bennett, J. C. LERC/Roelke, R. J. 41-Aero Engr

NAG 3-512 University of Connecticut 2456
Biaxial constitutive equation development
Period *Obligations*
01/06/84-11/14/87 FY88: TOTAL: \$378,271
Prin. Invest. NASA Tech. Officer CASE Category
Jordan, E. LERC/Thompson, R. L. 41-Aero Engr

NAG 3-854 University of Connecticut 2457
X ray based extensometry
Period *Obligations*
12/18/87-12/17/88 FY88: \$52,783 TOTAL: \$52,783
Prin. Invest. NASA Tech. Officer CASE Category
Jordon, E. H. LERC/Fralick, G. C. 46-Mech Engr
Pease, D. M. LERC/Williams, W. D.

NAG 3-882 University of Connecticut 2458
Nonlinear mechanics of composites with a periodic microstructure
Period *Obligations*
03/10/88-03/09/89 FY88: \$49,978 TOTAL: \$49,978
Prin. Invest. NASA Tech. Officer CASE Category
Jordan, E. H. LERC/Thompson, R. L. 41-Aero Engr

NAGW 244 Wesleyan University 2459
Morphology and evolution of the Valles Marineris wall scarps
Period *Obligations*
10/01/81-09/30/88 FY88: TOTAL: \$45,335
Prin. Invest. NASA Tech. Officer CASE Category
Patton, P. C. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAG 1-897 Yale University 2460
Critical workloads a Markov reward application
Period *Obligations*
08/01/88-07/31/89 FY88: \$51,650 TOTAL: \$51,650
Prin. Invest. NASA Tech. Officer CASE Category
Smith, R. M. LARC/Sjogren, J. A. 22-Computer Science

NAG 3-834 Yale University 2461
Theoretical damage mechanics for metal composites
Period *Obligations*
11/08/87-11/07/88 FY88: \$75,012 TOTAL: \$75,012
Prin. Invest. NASA Tech. Officer CASE Category
Onat, E. T. LERC/Freed, A. D. 46-Mech Engr

NAG 3-884 Yale University 2462
Theory of chemical vapor deposition processes for advanced ceramic coatings
Period *Obligations*
03/01/88-02/28/89 FY88: \$80,000 TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Rosner, D. LARC/Stearns, C. A. 19-Phys Sci, NEC

NAG 3-898 Yale University 2463
Theoretical studies in support of the 3m vapor transport experiments
Period *Obligations*
04/07/88-10/07/88 FY88: \$26,751 TOTAL: \$26,751
Prin. Invest. NASA Tech. Officer CASE Category
Rosner, D. E. LERC/Roberts, G. D. 47-Materials Engr
LERC/Chait, A.

NAG 5-736 Yale University 2464
Solar radius luminosity studies
Period *Obligations*
02/15/86-04/14/89 FY88: \$80,000 TOTAL: \$204,362
Prin. Invest. NASA Tech. Officer CASE Category
Sofia, S. GSFC/Maier, E. J. 31-Atmos Sci

NAG 5-871 Yale University 2465
The dynamics and remote sensing of tropopause folding
Period *Obligations*
02/15/87-05/31/89 FY88: \$75,000 TOTAL: \$149,858
Prin. Invest. NASA Tech. Officer CASE Category
Smith, R. B. GSFC/Uccellini, L. W. 31-Atmos Sci

NAG 9-93 Yale University 2466
Early differentiation of the morn: Experimental and modeling studies
Period *Obligations*
02/01/85-03/01/89 FY88: \$95,000 TOTAL: \$297,140
Prin. Invest. NASA Tech. Officer CASE Category
Longhi, J. JSC/Browne, I. D. 47-Materials Engr

NAGW 777 Yale University 2467
Global modeling of years-to-centuries timescales solar phenomena with probable terrestrial consequences
Period *Obligations*
07/01/85-12/31/88 FY88: \$161,250 TOTAL: \$651,375
Prin. Invest. NASA Tech. Officer CASE Category
Demarque, P. HQ-ES/Curtis, S. A. 11-Astronomy
Sofia, S. HQ-ES/Eastman, T.

NAGW 778 Yale University 2468
Theoretical studies of the solar stellar connection with the aid of space vehicles
Period *Obligations*
08/01/85-01/31/89 FY88: \$75,000 TOTAL: \$253,274
Prin. Invest. NASA Tech. Officer CASE Category
Demarque, P. HQ-ES/Mellott, M. M. 41-Aero Engr
HQ-EZ/Bunner, A.

NAGW 1402 Yale University 2469
Planning for the national laboratory of space plant biology
Period *Obligations*
07/01/88-06/30/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Galston, A. W. HQ-EB/Averner, M. M. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
CONNECTICUT (Continued)**

NAS 8-34903 Yale University 2470

Satellite data application to baroclinic wave structure
Period *Obligations*
 07/29/82-07/31/87 FY88: TOTAL: \$207,873
Prin. Invest. NASA Tech. Officer CASE Category
 Saltzman, B. MSFC/Fichel, B. G. 31-Atmos Sci
 Tang, G. M. MSFC/Kaufman, J. I.

NAS 8-36356 Yale University 2471

Application of dynamical systems theory to global weather phenomena
Period *Obligations*
 09/30/85-09/30/88 FY88: \$16,409 TOTAL: \$360,213
Prin. Invest. NASA Tech. Officer CASE Category
 Saltzman, B. MSFC/Kaufman, J. W. 31-Atmos Sci
 MSFC/Fichh, G. H.

NAS 9-17395 Yale University 2472

Disturbance isolation in flexible space structures: Modeling and control
Period *Obligations*
 03/26/85-10/01/87 FY88: TOTAL: \$125,000
Prin. Invest. NASA Tech. Officer CASE Category
 Narendra, K. S. JSC/Rocha, R. 45-Elec Engr

NGT 00-050-252 Yale University 2473

NASA graduate student researchers program
Period *Obligations*
 08/01/87-07/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Burch, W. HQ-XE/Owens, F. C. 39-Env Sci, NEC

NGT 00-050-284 Yale University 2474

NASA graduate student researchers program
Period *Obligations*
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Field, R. J. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-377 Yale University 2475

NASA graduate student researchers program
Period *Obligations*
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Rosner, D. E. HQ-XE/Owens, F. C. 43-Chem Engr

NGT 07-001-800 Yale University 2476

NASA graduate student researchers program
Period *Obligations*
 08/01/85-07/31/88 FY88: \$17,995 TOTAL: \$53,245
Prin. Invest. NASA Tech. Officer CASE Category
 Demarque, P. HQ-LE/Owens, F. C. 11-Astronomy

NSG 7290 Yale University 2477

Membranes and circadian rhythms in plants
Period *Obligations*
 10/01/76-10/31/88 FY88: \$50,000 TOTAL: \$615,790
Prin. Invest. NASA Tech. Officer CASE Category
 Galston, A. W. HQ-EB/Halstead, T. W. 51-Biological Sci
 HQ-EB/Devincenzi, D. L.

DELAWARE

NAG 1-378 University of Delaware 2478

Influence of constituent properties and geometric form on composite properties
Period *Obligations*
 06/01/83-03/31/88 FY88: TOTAL: \$210,899
Prin. Invest. NASA Tech. Officer CASE Category
 Pipes, R. B. ARC/Dexter, H. B. 47-Materials Engr
 Chou, T. W. ARC/Deaton, J. W.
 Wilson, D. W.

NAG 1-682 University of Delaware 2479

Sulfur geochemistry of tidal wetland sediments relative to volatile emission products
Period *Obligations*
 06/01/86-09/30/87 FY88: TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
 Church, T. E. LARC/Bartlett, D. S. 39-Env Sci, NEC
 Luther, G. W.

NAG 3-422 University of Delaware 2480

Advanced concepts for high efficiency GaAs concentrator solar cells for space applications
Period *Obligations*
 04/25/83-08/22/88 FY88: \$39,941 TOTAL: \$163,339
Prin. Invest. NASA Tech. Officer CASE Category
 Barnett, A. M. LERC/Curtis, H. B. 19-Phys Sci, NEC
 LERC/Flood, D. J.

NAG 5-853 University of Delaware 2481

A high resolution climatology of the terrestrial seasonal water cycle
Period *Obligations*
 10/01/86-06/30/89 FY88: \$50,243 TOTAL: \$110,700
Prin. Invest. NASA Tech. Officer CASE Category
 Willmott, C. J. GSFC/Oseroff, H. 19-Phys Sci, NEC

NAG 5-856 University of Delaware 2482

On board data processing and analysis system for astromoy
Period *Obligations*
 10/15/86-10/14/87 FY88: TOTAL: \$3,500
Prin. Invest. NASA Tech. Officer CASE Category
 Evenson, P. GSFC/Ormes, J. A. 42-Astro Engr

NAG 5-858 University of Delaware 2483

Magnetohydrodynamic turbulence and acceleration processes in solar later planetary and magnetosphere plasmas
Period *Obligations*
 11/01/86-05/31/89 FY88: \$28,000 TOTAL: \$72,982
Prin. Invest. NASA Tech. Officer CASE Category
 Mathaeus, W. H. GSFC/Goldstein, M. L. 31-Atmos Sci
 GSFC/Burlaga, L. F.

NAG 5-915 University of Delaware 2484

Micrometeorological field measurements in support of fife
Period *Obligations*
 06/15/87-06/14/89 FY88: \$43,459 TOTAL: \$72,171
Prin. Invest. NASA Tech. Officer CASE Category
 Lyzenga, D. GSFC/Camillo, P. 39-Env Sci, NEC
 Field, R. T. GSFC/Gurney, R. J.

**NASA'S UNIVERSITY PROGRAM
DELAWARE (Continued)**

NAG 5-972 University of Delaware 2485
Helium rich white dwarf stars
Period *Obligations*
09/01/87-11/30/89 FY88: \$31,000 TOTAL: \$47,119
Prin. Invest. NASA Tech. Officer CASE Category
Shipman, H. L. GSFC/Kondo, Y. 11-Astronomy

NAS 1-18758 University of Delaware 2493
Tailored composite structures of ordered staple thermoplastic materials
Period *Obligations*
09/30/88-09/30/90 FY88: \$106,400 TOTAL: \$106,400
Prin. Invest. NASA Tech. Officer CASE Category
Pipes, R. B. LARC/Jegley, D. C. 47-Materials Engr
Santare, M. H. LARC/Shuart, M. J.

NAG 8-662 University of Delaware 2486
Chemical evolution and pulsation of hot white dwarf stars
Period *Obligations*
08/01/87-07/31/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Shipman, H. L. MSFC/Harper, B. 11-Astronomy

NGT 00-050-205 University of Delaware 2494
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Evenson, P. A. HQ-XE/Owens, F. C. 13-Physics

NAGW 374 University of Delaware 2487
Remote sensing investigations of wetland biomass and productivity for global biosystems research
Period *Obligations*
12/01/82-05/31/89 FY88: \$67,270 TOTAL: \$400,528
Prin. Invest. NASA Tech. Officer CASE Category
Klenas, V. HQ-EB/Averner, M. M. 51-Biological Sci
Hardisky, M. A. HQ-EB/Devincenzi, D. L.

NGT 00-050-338 University of Delaware 2495
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Matthaeus, W. H. HQ-XE/Owens, F. C. 13-Physics

NAGW 950 University of Delaware 2488
Discrimination of wetlands vegetation using imaging spectrometry
Period *Obligations*
08/15/86-10/14/88 FY88: \$19,500 TOTAL: \$48,782
Prin. Invest. NASA Tech. Officer CASE Category
Klemas, V. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
HQ-EE/Ruzek, M. J.

DISTRICT OF COLUMBIA

NASW 4067 The American University 2496
Force and writing a history of the space station task
Period *Obligations*
06/01/85-01/20/88 FY88: TOTAL: \$67,172
Prin. Invest. NASA Tech. Officer CASE Category
McCurdy, H. E. HQ-LB/Fries, S. 41-Aero Engr
HQ-LB/Cohen, N. B.

NAGW 1040 University of Delaware 2489
Isotopic composition of cosmic ray helium from 0.3 to 1.8 gey nucleon
Period *Obligations*
02/15/87-02/14/89 FY88: \$169,574 TOTAL: \$239,574
Prin. Invest. NASA Tech. Officer CASE Category
Evenson, P. HQ-EZ/Jones, W. V. 13-Physics

NASW 4236 The American University 2497
Research and write a history of NASA's organizational culture
Period *Obligations*
07/01/87-06/30/89 FY88: \$45,387 TOTAL: \$87,670
Prin. Invest. NASA Tech. Officer CASE Category
McCurdy, H. E. HQ-LB/Fries, S. D. 73-History

NAGW 1148 University of Delaware 2490
Enhancement of ocean climate data management
Period *Obligations*
08/01/87-07/31/88 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Webster, F. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NGT 00-050-333 The American University 2498
NASA graduate student researchers program
Period *Obligations*
09/07/88-09/06/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Kay, R. B. HQ-XE/Owens, F. C. 13-Physics

NAGW 1295 University of Delaware 2491
Coordinated research on nonthermal astrophysics
Period *Obligations*
04/01/88-04/30/89 FY88: \$100,000 TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
Mullan, D. J. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Jones, W. V.

NAG 5-296 The Catholic University of America 2499
The sharp lined features in the ultraviolet spectra of hot white dwarfs
Period *Obligations*
09/15/87-09/14/89 FY88: \$88,216 TOTAL: \$474,423
Prin. Invest. NASA Tech. Officer CASE Category
Bruhweiler, F. C. GSFC/Kondo, Y. 11-Astronomy
Montrose, C.
Fekel, F.

NAGW 1437 University of Delaware 2492
Interdisciplinary scientist in Phobos project
Period *Obligations*
06/01/88-06/30/89 FY88: \$28,750 TOTAL: \$28,750
Prin. Invest. NASA Tech. Officer CASE Category
Ness, N. F. HQ-EL/Brinton, H. C. 13-Physics

NAG 5-311 The Catholic University of America 2500
Query decomposition of multiple queries
Period *Obligations*
04/15/83-06/30/89 FY88: \$32,277 TOTAL: \$244,879
Prin. Invest. NASA Tech. Officer CASE Category
Welch, J. N. GSFC/Jacobs, B. 22-Computer Science
GSFC/Berbert, J. H.

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NAG 5-520 The Catholic University of America 2501
 Research relative to active control of flexible spacecraft structures
Period *Obligations*
 03/15/85-10/14/88 FY88: TOTAL: \$112,154
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Baz, A. M. GSFC/Osborne, E. P. 46-Mech Engr
 GSFC/Studer, P. A.

NAG 5-1036 The Catholic University of America 2509
 Support calculations for staircase diodes low noise avalanche photodiodes
Period *Obligations*
 03/01/88-12/31/88 FY88: \$10,175 TOTAL: \$10,175
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meijer, P. H. GSFC/Abshire, J. B. 13-Physics

NAG 5-596 The Catholic University of America 2502
 An investigation of the largescale structure of the galactic interstellar medium
Period *Obligations*
 08/01/85-01/31/89 FY88: TOTAL: \$16,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bruhweiler, F. C. GSFC/Hallam, K. L. 11-Astronomy

NAG 5-1037 The Catholic University of America 2510
 Passive vibration control of flexible structures
Period *Obligations*
 03/01/88-02/28/89 FY88: \$40,750 TOTAL: \$40,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Baz, A. M. GSFC/Fedor, J. V. 46-Mech Engr

NAG 5-749 The Catholic University of America 2503
 Research relation to distributed control of large flexible space structures
Period *Obligations*
 03/15/86-05/14/89 FY88: \$40,750 TOTAL: \$122,252
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Baz, A. GSFC/Fedor, J. V. 45-Elec Engr
 Nguyen, C. C.

NAGW 738 The Catholic University of America 2511
 Interplanetary structures and MHD shocks
Period *Obligations*
 04/01/85-11/30/88 FY88: \$68,395 TOTAL: \$216,395
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Whang, Y. C. HQ-ES/Mellott, M. M. 13-Physics
 HQ-ES/Jones, W. V.

NAG 5-780 The Catholic University of America 2504
 Active control of robot manipulator compliance
Period *Obligations*
 05/15/86-12/31/88 FY88: \$79,080 TOTAL: \$146,203
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nguyen, C. C. GSFC/Premack, T. 45-Elec Engr

NAGW 1057 The Catholic University of America 2512
 Three dimensional magnetospheric current system and acceleration of particles in the magnetotail
Period *Obligations*
 04/15/87-04/14/88 FY88: TOTAL: \$46,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Whang, Y. C. HQ-EE/Fitzenreiter, R. J. 13-Physics
 Xu, R. L. HQ-EE/Eastman, T. E.

NAG 5-792 The Catholic University of America 2505
 Stream structures in the outer heliosphere
Period *Obligations*
 07/01/86-06/30/87 FY88: TOTAL: \$11,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Whang, Y. C. GSFC/Ness, N. F. 11-Astronomy

NAGW 1323 The Catholic University of America 2513
 Theoretical studies of CME associated slow shocks
Period *Obligations*
 03/01/88-05/31/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Luhang, Y. C. HQ-ES/Ahluwalia, H. S. 46-Mech Engr

NAG 5-848 The Catholic University of America 2506
 The containment vessels and architecture for the particle astrophysics magnet facility
Period *Obligations*
 09/15/86-09/30/89 FY88: \$55,085 TOTAL: \$74,153
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dame, R. E. GSFC/Ormes, J. F. 42-Astro Engr
 Kao, T.

NAGW 1365 The Catholic University of America 2514
 Solar flare gamma ray line shapes
Period *Obligations*
 07/01/88-06/31/89 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wernitz, C. HQ-EZ/Ahluwalia, H. S. 13-Physics

NAG 5-864 The Catholic University of America 2507
 Development of a theoretical model for annealing of radiation damage in semiconductor devices
Period *Obligations*
 12/15/86-12/31/88 FY88: \$98,973 TOTAL: \$193,927
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Litovchenko, V. GSFC/Danchenko, V. 13-Physics
 GSFC/White, A.

NGT 00-070-043 The Catholic University of America 2515
 Graduate student researchers underrepresented minority focus program
Period *Obligations*
 09/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bruhweiler, F. HQ-XE/Owens, F. C. 13-Physics

NAG 5-949 The Catholic University of America 2508
 Robust design of distributed controllers for large flexible space structures
Period *Obligations*
 07/01/87-06/30/88 FY88: TOTAL: \$22,391
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nguyen, C. C. GSFC/Studer, P. A. 39-Env Sci, NEC

NSG 5066 The Catholic University of America 2516
 Research of solar hard X-rays and gamma-rays
Period *Obligations*
 05/01/75-05/31/89 FY88: \$163,481 TOTAL: \$995,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wernitz, C. GSFC/Trombka, J. I. 11-Astronomy
 Starr, R. GSFC/Schmadebeck, R. L.

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NSG 5173 The Catholic University of America 2517
Atom-molecule reactions of chemical importance in the stratosphere
Period Obligations
06/01/77-04/30/89 FY88: \$47,293 TOTAL: \$408,032
Prin. Invest. NASA Tech. Officer CASE Category
Sanders, W. A. GSFC/Nava, D. F. 12-Chemistry
Michael, J. V.

NAG 1-771 George Washington University 2525
Statistical modelling of software reliability
Period Obligations
07/01/87-06/30/89 FY88: \$77,000 TOTAL: \$157,000
Prin. Invest. NASA Tech. Officer CASE Category
Miller, D. R. LARC/Finelli, G. B. 29-Math/Computer, NEC
LARC/Dotson, K. J.

NGT 00-090-013 Gallaudet College 2518
A model summer program for handicapped college students
Period Obligations
05/01/88-09/30/88 FY88: \$36,892 TOTAL: \$36,892
Prin. Invest. NASA Tech. Officer CASE Category
Nissen, A. B. HQ-U/Margolis, M. 49-Engr, NEC

NAG 1-788 George Washington University 2526
Transverse stresses in laminated composite panels
Period Obligations
07/01/87-06/30/89 FY88: \$50,000 TOTAL: \$90,000
Prin. Invest. NASA Tech. Officer CASE Category
Liebowitz, H. LARC/Starnes, J. H. 41-Aero Engr
Noor, A. K.

NAG 1-158 George Washington University 2519
Effects of low velocity impact on strength characteristics of composite materials laminates
Period Obligations
03/01/81-08/31/88 FY88: TOTAL: \$428,548
Prin. Invest. NASA Tech. Officer CASE Category
Liebowitz, H. LARC/Mixson, J. S. 47-Materials Engr
Moyer Jr., E. T. LARC/Bostaph, G. M.

NAG 1-852 George Washington University 2527
Nonlinear analysis and modeling of tires
Period Obligations
02/01/88-01/31/89 FY88: \$65,000 TOTAL: \$65,000
Prin. Invest. NASA Tech. Officer CASE Category
Liebowitz, H. LARC/Robinson, M. P. 46-Mech Engr
Noor, A. K. LARC/Lopez, M. C.

NAG 1-179 George Washington University 2520
Software reliability models for fault-tolerant avionics computers and related topics
Period Obligations
07/01/81-06/30/87 FY88: TOTAL: \$418,215
Prin. Invest. NASA Tech. Officer CASE Category
Miller, D. R. LARC/Migneault, G. E. 22-Computer Science
LARC/Finelli, G. B.

NAG 3-642 George Washington University 2528
Whisher growth under conditions which resemble those available on an orbiting space laboratory
Period Obligations
06/10/85-03/04/89 FY88: \$38,132 TOTAL: \$119,240
Prin. Invest. NASA Tech. Officer CASE Category
Hobbs, H. H. LERC/Westfall, L. J. 47-Materials Engr

NAG 1-325 George Washington University 2521
Determination of extent of Marangoni suppression attainable by gas jets in microgravity
Period Obligations
01/19/83-09/30/87 FY88: TOTAL: \$315,684
Prin. Invest. NASA Tech. Officer CASE Category
Dressler, R. F. LARC/Crouch, R. K. 19-Phys Sci, NEC
Sivakumaran, N. S. LARC/Fripp, A. L.

NAG 3-860 George Washington University 2529
Rotating ejectors
Period Obligations
01/10/88-02/01/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Garris, C. A. LERC/Rostafinski, W. 41-Aero Engr
Foa, J. V. LERC/Luidens, R.

NAG 1-728 George Washington University 2522
Effective reanalysis strategies for large scale design optimization
Period Obligations
01/01/87-01/31/89 FY88: \$45,000 TOTAL: \$94,968
Prin. Invest. NASA Tech. Officer CASE Category
Liebowitz, H. LARC/Carden, H. D. 41-Aero Engr
LARC/Sobieski, J.

NAG 3-883 George Washington University 2530
Marangoni suppression in microgravity
Period Obligations
03/01/88-02/28/89 FY88: \$94,412 TOTAL: \$94,412
Prin. Invest. NASA Tech. Officer CASE Category
Dressler, R. F. LERC/Salzman, J. A. 46-Mech Engr
Sivakumaran, N. S.

NAG 1-730 George Washington University 2523
Computational strategy for predicting the dynamic response of composite structures during impact
Period Obligations
01/01/87-12/31/88 FY88: \$65,000 TOTAL: \$65,000
Prin. Invest. NASA Tech. Officer CASE Category
Liebowitz, H. LARC/Carden, H. D. 41-Aero Engr
LARC/Robinson, M. P.

NAG 5-265 George Washington University 2531
Discrete random media techniques for microwave modeling of vegetated terrain
Period Obligations
08/15/82-02/28/89 FY88: \$76,975 TOTAL: \$350,616
Prin. Invest. NASA Tech. Officer CASE Category
Lang, R. H. GSFC/Oseroff, H. 55-Agriculture Sci

NAG 1-740 George Washington University 2524
Effect of damping and flexibility of joints on the response of large space structures
Period Obligations
02/01/87-01/31/88 FY88: TOTAL: \$48,036
Prin. Invest. NASA Tech. Officer CASE Category
Liebowitz, H. LARC/Mikulias, M. M. 49-Engr, NEC
Noor, A. K. LARC/Cooper, P. A.

NAG 5-834 George Washington University 2532
Thermal fluid mechanic characteristics of the capillary pump
Period Obligations
09/01/86-03/31/89 FY88: \$67,894 TOTAL: \$159,748
Prin. Invest. NASA Tech. Officer CASE Category
Kiper, A. M. GSFC/Swanson, T. D. 46-Mech Engr
GSFC/McIntosh, R.

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NAGW 720 George Washington University 2533
New deterministic forecasting method for density currents and winds over mountainous terrain
Period *Obligations*
01/01/85-09/30/88 FY88: \$68,950 TOTAL: \$346,210
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dressler, R. F. HQ-EE/Curran, R. J. 31-Atmos Sci
Sivakumaran, N. S. HQ-EE/Theon, J. S.

NAGW 984 George Washington University 2534
Eos simultaneity study
Period *Obligations*
10/15/86-10/14/87 FY88: TOTAL: \$18,388
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lang, R. H. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC

NAGW 1164 George Washington University 2535
Technical needs and research opportunities provided by projected aeronautical and space systems
Period *Obligations*
09/01/87-08/31/88 FY88: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Noor, A. K. HQ-RM/Venneri, S. L. 41-Aero Engr
HQ-RM/Mulville, D.

NAS 1-14605 George Washington University 2536
Experimental and analytical engineering and applied science support of Langley Research Center programs
Period *Obligations*
09/02/76-09/01/87 FY88: TOTAL: \$794,835
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Duberg, J. E. 41-Aero Engr
Whitesides, J. L. LARC/Erickson, W. D.

NAS 1-18458 George Washington University 2537
Experimental and analytical engineering and other science support
Period *Obligations*
04/13/87-04/12/92 FY88: \$579,725 TOTAL: \$970,145
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolfson, B. E. LARC/Massenberg, S. E. 41-Aero Engr
LARC/Prior, E. J.

NAS 5-30092 George Washington University 2538
Research for the integration of the UIMS system
Period *Obligations*
03/20/87-03/20/89 FY88: \$92,795 TOTAL: \$180,392
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sibert, J. L. GSFC/Truskowski, W. F. 22-Computer Science

NASW 3165 George Washington University 2539
Scientific communication in planetary biology and bioscience
Period *Obligations*
04/17/78-06/30/88 FY88: TOTAL: \$1,984,854
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jones, E. HQ-EB/Halstead, T. W. 59-Life Sci, NEC
HQ-EB/Soffen, G. A.

NASW 4237 George Washington University 2540
Research and write a history of international participation in the U.S. Space station program
Period *Obligations*
08/04/87-11/03/88 FY88: TOTAL: \$71,894
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Logsdon, J. M. HQ/Fries, S. 73-History

NASW 4324 George Washington University 2541
Editorial support for the life sciences division
Period *Obligations*
07/01/88-06/30/90 FY88: \$380,000 TOTAL: \$380,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holden, C. D. HQ-EB/Halstead, T. 59-Life Sci, NEC

NCC 1-14 George Washington University 2542
Aeroacoustics research program in Joint Institute for Advancement of Flight Sciences (JIAFS)
Period *Obligations*
05/15/79-10/31/88 FY88: \$163,540 TOTAL: \$1,181,419
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Clark, L. R. 41-Aero Engr
Myers, M. K. LARC/Stephens, D. G.

NCC 1-24 George Washington University 2543
Programs of research in flight sciences
Period *Obligations*
08/15/79-01/31/89 FY88: \$179,088 TOTAL: \$1,194,963
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Bright, R. T. 41-Aero Engr
Whitesides, J. L.

NCC 1-29 George Washington University 2544
Research program in flight dynamics in the Joint Institute for Advancement of Flight Sciences (JIAFS) at the NASA Langley Research Center
Period *Obligations*
12/01/79-11/30/88 FY88: \$169,678 TOTAL: \$934,396
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Batterson, J. G. 41-Aero Engr
LARC/Murphy, P. C.

NCC 1-47 George Washington University 2545
A core program in the Joint Institute for Advancement of Flight Sciences at the NASA Langley Research Center
Period *Obligations*
11/04/80-10/31/88 FY88: \$326,000 TOTAL: \$2,070,571
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Massenberg, S. E. 41-Aero Engr
Whitesides, J. L. LARC/Barnwell, R. W.

NCC 1-104 George Washington University 2546
Astronautics in the Joint Institute for Advancement of Flight Sciences JIAFS
Period *Obligations*
05/01/86-05/31/89 FY88: \$99,999 TOTAL: \$368,370
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Avery, D. E. 42-Astro Engr

NGR 09-010-078 George Washington University 2547
Research programs in structures and dynamics
Period *Obligations*
01/06/72-06/30/88 FY88: TOTAL: \$2,902,047
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Robinson, M. P. 41-Aero Engr
Noor, A. K. LARC/Card, M. F.

NGR 09-010-085 George Washington University 2548
Aircraft noise reduction research
Period *Obligations*
02/21/73-06/30/89 FY88: \$9,576 TOTAL: \$699,704
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liebowitz, H. LARC/Clark, L. R. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NAGW 446 Howard University 2565
An integrated laboratory and observational study of the inner coma of Halley's comet
Period Obligations
06/01/83-06/30/88 FY88: TOTAL: \$430,338
Prin. Invest. NASA Tech. Officer CASE Category
Jackson, W. M. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 785 Howard University 2566
Photochemistry of acetylenes laboratory studies related to the photochemistry in Titan's atmosphere
Period Obligations
08/01/85-09/30/88 FY88: TOTAL: \$139,070
Prin. Invest. NASA Tech. Officer CASE Category
Okabe, H. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 898 Howard University 2567
Integration of sea ice data on leads and polynyas obtained by multiple satellites
Period Obligations
08/01/86-05/31/89 FY88: \$42,293 TOTAL: \$114,100
Prin. Invest. NASA Tech. Officer CASE Category
Dey, B. HQ-U/Magolis, M. 33-Oceanography
HQ-U/Coleman, A. M.

NAS 5-30203 Howard University 2568
Second Howard university symposium on nonlinear semigroups partial differential equations and attractors research exchange on realistic nonlinear modeling
Period Obligations
08/03/87-11/17/87 FY88: TOTAL: \$10,500
Prin. Invest. NASA Tech. Officer CASE Category
Gill, T. L. GSFC/Gordon, R. A. 21-Mathematics
Zacary, W. W.

NCA 5-107 Howard University 2569
Public service internship program
Period Obligations
06/03/86-05/31/89 FY88: \$30,250 TOTAL: \$88,062
Prin. Invest. NASA Tech. Officer CASE Category
Woodard, M. C. GSFC/Menchan, D. 99-Multi-Discip

NCC 5-25 Howard University 2570
A simulation network for electrical engineering
Period Obligations
10/01/82-11/30/88 FY88: TOTAL: \$822,268
Prin. Invest. NASA Tech. Officer CASE Category
Michal, G. M. GSFC/Truskowski, W. F. 45-Elec Engr
Spencer, M.
Neal, W.

NGT 00-050-109 Howard University 2571
NASA graduate student researchers program
Period Obligations
09/01/86-08/31/89 FY88: \$35,997 TOTAL: \$53,921
Prin. Invest. NASA Tech. Officer CASE Category
Broome, T. H. HQ-LE/Owens, F. C. 46-Mech Engr

NGT 09-011-060 Howard University 2572
NASA graduate students researchers program
Period Obligations
01/01/78-03/31/89 FY88: \$285,411 TOTAL: \$1,436,763
Prin. Invest. NASA Tech. Officer CASE Category
Fan, D. N. HQ-XE/McGee, A. S. 99-Multi-Discip
HQ-XE/Schwartz, E. T.

NGT 09-011-804 Howard University 2573
NASA graduate student researchers program
Period Obligations
05/01/85-05/14/88 FY88: TOTAL: \$12,000
Prin. Invest. NASA Tech. Officer CASE Category
Dey, B. HQ-LE/Owens, F. C. 32-Geological Sci

NSG 1414 Howard University 2574
The dynamics and control of large flexible space structures
Period Obligations
05/16/77-05/15/89 FY88: \$69,335 TOTAL: \$735,221
Prin. Invest. NASA Tech. Officer CASE Category
Bainum, P. M. LARC/Young, J. W. 49-Engr, NEC
Kumar, V. K.
Reddy, A. S.

NAG 5-1012 University of District of Columbia 2575
The consisting of climatological products of number 7
Period Obligations
10/01/87-12/31/88 FY88: TOTAL: \$49,473
Prin. Invest. NASA Tech. Officer CASE Category
Ohuria, H. GSFC/Kyle, H. L. 31-Atmos Sci

NGT 05-050-902 University of District of Columbia 2576
A Saturday academy: Engineering, mathematics and computer science for academically talented students from the metropolitan Washington area
Period Obligations
01/28/84-12/31/88 FY88: \$121,393 TOTAL: \$688,717
Prin. Invest. NASA Tech. Officer CASE Category
Coleman, W. R. HQ-U/Margolis, M. 22-Computer Science
HQ-U/Pohly, J.

FLORIDA

NAG 5-952 Eckerd College 2577
The irradiation and vaporization of cometary ices
Period Obligations
08/01/87-11/30/87 FY88: TOTAL: \$14,830
Prin. Invest. NASA Tech. Officer CASE Category
Hudson, R. L. GSFC/Donn, B. 12-Chemistry

NCC 1-66 Embry-Riddle Aeronautical University 2578
Advanced aircraft-air traffic control (ATC) interaction (AAA1)
Period Obligations
03/01/82-02/28/89 FY88: \$52,031 TOTAL: \$327,234
Prin. Invest. NASA Tech. Officer CASE Category
Lohr, G. W. LARC/Credeur, L. 41-Aero Engr
LARC/Bergeron, H. P.

NAG 2-411 Florida A&M University 2579
Calcitonin control of calcium metabolism during weightlessness
Period Obligations
09/01/86-12/31/88 FY88: \$75,498 TOTAL: \$127,348
Prin. Invest. NASA Tech. Officer CASE Category
Soliman, K. F. ARC/Arnaud, S. B. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NAG 5-738 Florida A&M University 2580
Application of the partial differential equation method in electron molecule collisions
Period *Obligations*
02/15/86-04/14/89 FY88: \$11,784 TOTAL: \$34,813
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weatherford, C. A. GSFC/Temkin, A. 13-Physics
GSFC/Sullivan, E. C.

NAG10-44 Florida A&M University 2581
Computer aided engineering technology a sub task of space systems integrations and operations research application
Period *Obligations*
09/01/87-08/31/88 FY88: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kidd, C. KSC/Spears, J. M. 99-Multi-Discip

NAS 5-25165 Florida A&M University 2582
Medical application for computer technology
Period *Obligations*
08/15/78-12/17/88 FY88: TOTAL: \$97,317
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fresh, F. A. GSFC/Alterescu, S. 46-Mech Engr

NCC 2-492 Florida A&M University 2583
Application and development of the Schwinger multichannel scattering theory for electronic excitation of CO and CN by electron impact
Period *Obligations*
05/01/87-11/16/88 FY88: TOTAL: \$46,362
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weatherford, C. A. ARC/Huo, W. M. 12-Chemistry

NGT 00-090-012 Florida A&M University 2584
Post-graduate education in engineering
Period *Obligations*
05/01/88-04/31/89 FY88: \$85,360 TOTAL: \$85,360
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Humphries, F. S. HQ-U/Warren, L. 49-Engr, NEC
HQ-U/Margolis, M.

NGT 00-090-015 Florida A&M University 2585
Summer bridge program the engineering concepts inshinte
Period *Obligations*
06/21/88-11/21/88 FY88: \$38,055 TOTAL: \$38,055
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rogers, D. HQ-U/Freeman, Y. B. 49-Engr, NEC
KSC/Diggs, J. D.

NGT 10-040-900 Florida A&M University 2586
NASA graduate student researchers program
Period *Obligations*
10/01/85-09/30/88 FY88: \$376,592 TOTAL: \$1,018,617
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fannin, L. D. HQ-U/Warren, L. S. 59-Life Sci, NEC
HQ-U/Pohly, J. G.

NSG 2183 Florida A&M University 2587
Regulation of the adrenal cortex function during stress
Period *Obligations*
09/01/76-01/18/88 FY88: TOTAL: \$448,442
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Casey, J. JSC/Hamilton, D. A. 59-Life Sci, NEC

NAG 1-685 Florida Atlantic University 2588
Use of energy accountancy and power flow techniques for aircraft noise transmission
Period *Obligations*
09/01/86-12/31/88 FY88: \$21,401 TOTAL: \$134,728
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cuschieri, J. M. LARC/Metcalf, V. L. 46-Mech Engr
LARC/Powell, C. A.

NAG 1-715 Florida Atlantic University 2589
Theoretical models for helicopter blade wake interaction noise
Period *Obligations*
11/10/86-11/09/88 FY88: TOTAL: \$54,803
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glegg, S. A. LARC/Farassat, F. 41-Aero Engr

NAGW 989 Florida Atlantic University 2590
Ground based column abundance of measurements of atmospheric hydroxyl from 7 n 40 n and 65 n
Period *Obligations*
12/01/86-08/31/89 FY88: TOTAL: \$44,769
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burnett, C. R. HQ-EE/Margitan, J. J. 31-Atmos Sci
HQ-EE/Kurylo, M. J.

NAG10-30 Florida Atlantic University 2591
Atmospheric corrosion of selected stainless steels as applicable to the STS launch environment
Period *Obligations*
03/07/86-03/07/87 FY88: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hart, W. H. KSC/Mac dowell, L. G. 11-Astronomy
Smith, S. W.

NAG 8-109 Florida Institute of Technology 2592
A new and computationally rapid solution method for conduction radiation fin analysis
Period *Obligations*
06/15/88-06/14/89 FY88: \$41,503 TOTAL: \$41,503
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frankel, J. I. MSFC/Gill, U. S. 46-Mech Engr
MSFC/Patterson, W. C.

NAG10-37 Florida Institute of Technology 2593
Phase 1 general purpose end effector
Period *Obligations*
04/28/87-10/28/87 FY88: TOTAL: \$24,657
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dilpare, A. L. KSC/Littlefield, M. 99-Multi-Discip

NAG 1-421 Florida State University 2594
Computation of large turbulence structures and noise of supersonic jets
Period *Obligations*
12/15/83-12/31/88 FY88: \$60,000 TOTAL: \$280,962
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tam, C. K. LARC/Seiner, J. M. 41-Aero Engr
LARC/Pao, S. P.

NAG 1-588 Florida State University 2595
Gaseous and particular sulfur species and organic acids over the Amazon basin
Period *Obligations*
06/01/85-07/31/88 FY88: TOTAL: \$62,288
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Andreae, M. O. LARC/Bendura, R. J. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NAG 1-862 Florida State University 2596
Spectral solution of discontinuous hyperbolic problems
Period Obligations
05/08/88-05/07/89 FY88: \$38,088 TOTAL: \$38,088
Prin. Invest. NASA Tech. Officer CASE Category
Kopriva, D. A. LARC/Zang, T. A. 41-Aero Engr
LARC/Kumar, A.

NAG 2-314 Florida State University 2597
The development of laser speckle velocimetry for the study of vortical flaws
Period Obligations
10/01/84-10/31/88 FY88: \$101,897 TOTAL: \$298,160
Prin. Invest. NASA Tech. Officer CASE Category
Krothapalli, A. ARC/Smith, C. A. 41-Aero Engr
Lourenco, L. M. ARC/Signor, D. B.
Dommelen, L. V.

NAG 5-764 Florida State University 2598
Relating multitemporal meteorological satellite data to climatological data from Africa
Period Obligations
04/01/86-09/30/89 FY88: \$49,225 TOTAL: \$129,225
Prin. Invest. NASA Tech. Officer CASE Category
Rosborough, G. W. GSFC/Holben, B. N. 39-Env Sci, NEC
Tucker, C. J.

NAG 5-777 Florida State University 2599
Evaluation and testing of global model simulations
Period Obligations
05/01/86-05/14/87 FY88: TOTAL: \$11,441
Prin. Invest. NASA Tech. Officer CASE Category
Pfeffer, R. L. GSFC/Baker, W. 31-Atmos Sci

NAG 5-815 Florida State University 2600
Prognostic studies of wave mean flow and wave flow interactions
Period Obligations
07/15/86-02/28/89 FY88: \$114,000 TOTAL: \$232,000
Prin. Invest. NASA Tech. Officer CASE Category
Pfeffer, R. L. GSFC/Helfand, M. 31-Atmos Sci

NAG 5-849 Florida State University 2601
Interannual variation of the net radiation balance over the western Sahara and sub Sahara
Period Obligations
10/01/86-02/28/89 FY88: \$83,000 TOTAL: \$186,000
Prin. Invest. NASA Tech. Officer CASE Category
Smith, E. A. GSFC/Oseroff, H. 19-Phys Sci, NEC

NAG 5-891 Florida State University 2602
Retrieval of surface fluxes from a combination of satellite and surface platforms
Period Obligations
04/15/87-03/14/89 FY88: \$60,000 TOTAL: \$152,000
Prin. Invest. NASA Tech. Officer CASE Category
Smith, E. A. GSFC/Choudhury, B. 39-Env Sci, NEC
GSFC/Hall, F.

NAG 8-33 Florida State University 2603
Analysis and use of VAS satellite data
Period Obligations
08/23/85-08/23/88 FY88: TOTAL: \$155,796
Prin. Invest. NASA Tech. Officer CASE Category
Fuelberg, H. E. MSFC/Greene, W. M. 31-Atmos Sci
MSFC/Smith, G. T.

NAG 8-75 Florida State University 2604
Dynamics of baroclinic wave systems
Period Obligations
08/04/86-04/20/88 FY88: TOTAL: \$99,999
Prin. Invest. NASA Tech. Officer CASE Category
Barcilon, A. MSFC/Miller, T. L. 19-Phys Sci, NEC
Weng, H. MSFC/Smith, G. T.
Johnson, R. M.

NAG 8-631 Florida State University 2605
Analysis of space field program data
Period Obligations
06/01/87-05/31/89 FY88: \$84,650 TOTAL: \$159,545
Prin. Invest. NASA Tech. Officer CASE Category
Ray, P. MSFC/Robertson, F. R. 31-Atmos Sci
MSFC/Blakeslee, R. J.

NAG 8-653 Florida State University 2606
An evaluation of satellite derived humidity and its relationship to convective development
Period Obligations
12/01/87-12/01/88 FY88: \$89,997 TOTAL: \$89,997
Prin. Invest. NASA Tech. Officer CASE Category
Fuelberg, H. MSFC/Christain, H. J. 31-Atmos Sci
MSFC/Wilson, G. S.

NAGW 985 Florida State University 2607
Data assimilation in ocean circulation models using space acquired an in situ observations
Period Obligations
11/01/86-04/31/89 FY88: \$134,000 TOTAL: \$259,000
Prin. Invest. NASA Tech. Officer CASE Category
O'Brien, J. J. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 991 Florida State University 2608
Sophisticated mathematical modeling of microwave radiative transfer through a simulated evolving cloud including snow rain ice and water vapor
Period Obligations
01/01/87-06/30/88 FY88: TOTAL: \$116,000
Prin. Invest. NASA Tech. Officer CASE Category
Smith, E. A. HQ-EE/Tuyahov, A. J. 31-Atmos Sci

NAG10-47 Florida State University 2609
The application of VAS satellite imagery to thunderstorm forecasting at Cape Canaveral
Period Obligations
08/01/88-08/01/89 FY88: \$54,991 TOTAL: \$54,991
Prin. Invest. NASA Tech. Officer CASE Category
Fuelberg, H. E. KSC/Nicholson, J. R. 31-Atmos Sci

NGT 00-050-042 Florida State University 2610
NASA graduate student researchers program
Period Obligations
08/07/86-08/06/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
Iverson, R. L. HQ-LE/Owens, F. C. 33-Oceanography

NGT 00-050-058 Florida State University 2611
NASA graduate student researchers program
Period Obligations
08/01/86-07/31/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
Barcilon, A. HQ-LE/Owens, F. C. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NGT 00-070-062 Florida State University 2612
Graduate student researchers underrepresented minority focus program
Period Obligations
10/01/87-09/30/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Nicholson, S. E. HQ-XE/Owens, F. C. 31-Atmos Sci

NGT 00-070-095 Florida State University 2613
Graduate student researchers underrepresented minority focus program
Period Obligations
08/15/88-08/14/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Fuelberg, H. E. HQ-XE/Owens, F. C. 33-Oceanography

NGT 10-004-800 Florida State University 2614
Graduate student training program in oceanographic remote sensing
Period Obligations
06/01/81-05/31/89 FY88: \$112,074 TOTAL: \$793,464
Prin. Invest. NASA Tech. Officer CASE Category
O'Brien, J. J. HQ-EE/Thomas, R. H. 33-Oceanography
Mach, W. H. HQ-EE/Wilson, W. S.

NSG 7337 Florida State University 2615
Rock-inhabiting microorganisms from hot and cold deserts: Adaptations to extreme environments
Period Obligations
03/15/77-10/14/88 FY88: \$145,205 TOTAL: \$1,115,213
Prin. Invest. NASA Tech. Officer CASE Category
Friedmann, E. I. HQ-EB/Rummel, J. D. 51-Biological Sci
Friedmann, R. O. HQ-EB/Averner, M.

NSG 7473 Florida State University 2616
Laboratory determination of infrared absorption line parameters for molecules of importance in upper atmospheric research
Period Obligations
07/01/78-12/31/87 FY88: TOTAL: \$333,286
Prin. Invest. NASA Tech. Officer CASE Category
Hunt, R. H. HQ-EE/Hampson, R. F. 31-Atmos Sci
HQ-EE/Margitan, J. J.

NAG10-42 The University of Central Florida 2617
Automation knowledge generation
Period Obligations
08/17/87-08/18/89 FY88: \$159,596 TOTAL: \$295,304
Prin. Invest. NASA Tech. Officer CASE Category
Gonzalez, A. KSC/Davis, T. C. 99-Multi-Discip

NAG10-43 The University of Central Florida 2618
Expert systems applications educational project
Period Obligations
08/10/87-08/10/88 FY88: \$3,000 TOTAL: \$34,025
Prin. Invest. NASA Tech. Officer CASE Category
Gonzalez, A. J. KSC/Davis, T. C. 99-Multi-Discip

NAS10-11351 The University of Central Florida 2619
Heat pipe application for increase dehydration for air condition systems
Period Obligations
11/17/86-11/17/87 FY88: TOTAL: \$59,312
Prin. Invest. NASA Tech. Officer CASE Category
Khaltar, M. K. KSC/Boggs, W. 99-Multi-Discip

NAS10-11385 The University of Central Florida 2620
Unique application of heat pipes to increase dehumidification performance of air conditioning systems
Period Obligations
03/09/87-03/09/88 FY88: TOTAL: \$43,600
Prin. Invest. NASA Tech. Officer CASE Category
Khattar, M. KSC/O'malley, J. K. 99-Multi-Discip

NGT 00-050-390 The University of Central Florida 2621
NASA graduate student researchers program
Period Obligations
09/06/88-09/05/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Bishop, P. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-060-002 The University of Central Florida 2622
NASA summer faculty fellowship program in research
Period Obligations
01/01/88-03/31/89 FY88: \$213,855 TOTAL: \$213,855
Prin. Invest. NASA Tech. Officer CASE Category
Anderson, L. A. HQ-XE/McGee, A. S. 49-Engr, NEC
HQ-XE/Schwartz, E. T.

NAG 1-368 University of Florida 2623
Studies in high-angle-of-attack aerodynamics
Period Obligations
05/06/83-05/31/87 FY88: TOTAL: \$55,150
Prin. Invest. NASA Tech. Officer CASE Category
Fearn, R. L. LARC/Kjelgaard, S. O. 41-Aero Engr

NAG 1-609 University of Florida 2624
Investigation of temperature and concentration oscillations in the directional solidification of PbSnTe
Period Obligations
08/01/85-07/31/89 FY88: \$100,964 TOTAL: \$259,981
Prin. Invest. NASA Tech. Officer CASE Category
Anderson, T. J. LARC/Fripp, A. L. 13-Physics
Narayanan, R.

NAG 1-671 University of Florida 2625
Generation of an energetic oxygen atom beam using electron stimulated desorption
Period Obligations
04/01/86-03/31/89 FY88: \$30,025 TOTAL: \$90,069
Prin. Invest. NASA Tech. Officer CASE Category
Hoflund, G. B. LARC/Outlaw, R. A. 47-Materials Engr
LARC/Meador, W. E.

NAG 1-688 University of Florida 2626
Studies in aeroelastic synthesis for nondeterministic loads
Period Obligations
08/01/86-12/15/87 FY88: TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Hajela, P. LARC/Sleeper, R. K. 41-Aero Engr
LARC/Perry, B.

NAG 1-737 University of Florida 2627
Analytical study of gasdynamic mixing lasers
Period Obligations
02/01/87-01/31/89 FY88: TOTAL: \$32,356
Prin. Invest. NASA Tech. Officer CASE Category
Chen, K. Y. LARC/Deyoung, R. J. 13-Physics
LARC/Conway, E. J.

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NAG 1-794 University of Florida 2628
Development of a high performance carbon oxygen oxidation catalyst for use in CO2 lasers
Period *Obligations*
07/17/87-10/31/88 FY88: \$42,500 TOTAL: \$92,500
Prin. Invest. NASA Tech. Officer CASE Category
Hoflund, G. B. LARC/Schryer, D. R. 43-Chem Engr
LARC/Hess, R. V.

NAG 1-826 University of Florida 2629
Impact response and damage in three dimensional braided graphite fiber composites
Period *Obligations*
11/01/87-10/31/88 FY88: \$65,488 TOTAL: \$65,488
Prin. Invest. NASA Tech. Officer CASE Category
Sankar, B. V. LARC/Poe, C. C. 47-Materials Engr
LARC/Crews, J. H.

NAG 1-850 University of Florida 2630
Multilevel decomposition in the context of global sensitivity analysis
Period *Obligations*
02/02/88-02/01/89 FY88: \$7,999 TOTAL: \$7,999
Prin. Invest. NASA Tech. Officer CASE Category
Hajela, P. LARC/Sobieski, J. 41-Aero Engr

NAG 2-473 University of Florida 2631
Development of solution adaptive computational methods for complex flow problems of propfan transport
Period *Obligations*
09/01/87-08/31/88 FY88: \$49,855 TOTAL: \$49,855
Prin. Invest. NASA Tech. Officer CASE Category
Hsu, C. C. ARC/Chyu, W. J. 41-Aero Engr

NAG 3-363 University of Florida 2632
Numerical study of fluid flow, heat transfer and combustion processes inside the combustion chamber of a direct-injection-stratified-charge rotary engine
Period *Obligations*
01/01/83-12/30/88 FY88: \$69,897 TOTAL: \$344,954
Prin. Invest. NASA Tech. Officer CASE Category
Shih, T. i. LERC/Schock, H. J. 46-Mech Engr
LERC/Nguyen, L.

NAG 3-828 University of Florida 2633
Flow fields inside compressor and turbine components of gas turbine engine
Period *Obligations*
10/28/87-10/27/88 FY88: \$60,240 TOTAL: \$60,240
Prin. Invest. NASA Tech. Officer CASE Category
Shih, T. i. LERC/Roelke, R. J. 41-Aero Engr
LERC/Moore, R. D.

NAG 3-874 University of Florida 2634
Wave formation in a non-Newtonian fluid used for deicing
Period *Obligations*
02/25/88-02/24/89 FY88: \$37,500 TOTAL: \$37,500
Prin. Invest. NASA Tech. Officer CASE Category
Yih, C. S. LERC/Reinmann, J. J. 41-Aero Engr

NAG 3-911 University of Florida 2635
Penetration, mixing and combustion of jets injected into supersonic streams
Period *Obligations*
06/15/88-12/14/88 FY88: \$6,926 TOTAL: \$6,926
Prin. Invest. NASA Tech. Officer CASE Category
P-shih, T. i. LERC/Nguyen, H. L. 46-Mech Engr

NAG 5-773 University of Florida 2636
Low frequency radio emission from data planet magnetospheres
Period *Obligations*
05/01/86-05/31/89 FY88: \$36,000 TOTAL: \$94,332
Prin. Invest. NASA Tech. Officer CASE Category
Carr, T. D. GSFC/Kaiser, M. L. 11-Astronomy
GSFC/Deslh, M. D.

NAG 9-91 University of Florida 2637
Evolution of an Archean continental margin
Period *Obligations*
07/01/84-11/01/88 FY88: TOTAL: \$69,500
Prin. Invest. NASA Tech. Officer CASE Category
Gilbert, J. A. JSC/Phinney, W. C. 32-Geological Sci

NAGW 1153 University of Florida 2638
A VHF lightning discharge source location system
Period *Obligations*
08/01/87-02/29/88 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
Uman, M. A. HQ-EE/Dodge, J. C. 31-Atmos Sci
HQ-EE/Kakar, R. K.

NAGW 1257 University of Florida 2639
Criteria for trajectory based parent daughter inference in support of dust collection instrumentation on the space station
Period *Obligations*
01/01/88-12/31/88 FY88: \$69,030 TOTAL: \$69,030
Prin. Invest. NASA Tech. Officer CASE Category
Gustafson, B. A. HQ-EL/Evans, L. G. 11-Astronomy
HQ-EL/Quaide, W. L.

NAGW 1289 University of Florida 2640
Giotto data analysis renewal proposal for the Halley optical probe experiment
Period *Obligations*
05/01/88-04/30/89 FY88: \$68,743 TOTAL: \$68,743
Prin. Invest. NASA Tech. Officer CASE Category
Giovane, F. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Quaide, W. L.

NAG10-41 University of Florida 2641
Clinical practice library of medicine content expansion with datafile enhancements for color graphics materials
Period *Obligations*
03/09/87-04/06/89 FY88: \$176,489 TOTAL: \$337,029
Prin. Invest. NASA Tech. Officer CASE Category
Grams, R. R. KSC/Koller, A. 56-Medical Sciences

NAG10-48 University of Florida 2642
Microbiological wastewater conversion system
Period *Obligations*
08/02/88-08/01/89 FY88: \$56,307 TOTAL: \$56,307
Prin. Invest. NASA Tech. Officer CASE Category
Koopman, B. KSC/Williams, P. 99-Multi-Discip

NAS 2-9976 University of Florida 2643
Experiment implementation of a lightning and radio emission detector
Period *Obligations*
05/31/78-12/31/89 FY88: \$50,140 TOTAL: \$135,513
Prin. Invest. NASA Tech. Officer CASE Category
Lanzerotti, L. J. ARC/Wilhelmi, A. J. 31-Atmos Sci
Uman, M. A. ARC/Tischler, E. T.

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

<p>NAG 5-741</p> <p>Estimation of present day plate motions using satellite laser ranging results</p> <p><i>Period</i> 03/01/86-04/30/89</p> <p><i>Prin. Invest.</i> Harrison, C. G.</p>	<p>University of Miami</p> <p>2660</p> <p><i>Obligations</i> FY88: \$38,605</p> <p><i>NASA Tech. Officer</i> GSFC/Frey, H. V.</p> <p><i>CASE Category</i> 32-Geological Sci</p>	<p>TOTAL: \$107,181</p>	<p>NAS 5-28798</p> <p>Coastal zone color scanner degradation study</p> <p><i>Period</i> 03/01/86-08/31/87</p> <p><i>Prin. Invest.</i> Gordon, H. G.</p>	<p>University of Miami</p> <p>2668</p> <p><i>Obligations</i> FY88:</p> <p><i>NASA Tech. Officer</i> GSFC/Szajna, E. F.</p> <p><i>CASE Category</i> 33-Oceanography</p>	<p>TOTAL: \$39,589</p>
<p>NAG 5-811</p> <p>Satellite ocean color sensor coverage</p> <p><i>Period</i> 09/05/86-09/04/87</p> <p><i>Prin. Invest.</i> Brown, O. B.</p>	<p>University of Miami</p> <p>2661</p> <p><i>Obligations</i> FY88:</p> <p><i>NASA Tech. Officer</i> GSFC/Kirk, R. G.</p> <p><i>CASE Category</i> 33-Oceanography</p>	<p>TOTAL: \$35,902</p>	<p>NAS 5-29338</p> <p>Maintenance and operation of the application technology satellite (ATS-3) communication system</p> <p><i>Period</i> 04/01/86-03/31/89</p> <p><i>Prin. Invest.</i> Brown, O.</p>	<p>University of Miami</p> <p>2669</p> <p><i>Obligations</i> FY88: \$91,843</p> <p><i>NASA Tech. Officer</i> GSFC/Wales, R.</p> <p><i>CASE Category</i> 49-Engr, NEC</p>	<p>TOTAL: \$265,360</p>
<p>NAG 8-621</p> <p>Aerosol measurements over the Pacific Ocean in support of the IR aerosol backscatter program</p> <p><i>Period</i> 01/26/87-01/25/89</p> <p><i>Prin. Invest.</i> Prospero, J. M. Savoie, D. L.</p>	<p>University of Miami</p> <p>2662</p> <p><i>Obligations</i> FY88: \$98,014</p> <p><i>NASA Tech. Officer</i> MSFC/Fitzjarrald, D. E.</p> <p><i>CASE Category</i> 31-Atmos Sci</p>	<p>TOTAL: \$173,852</p>	<p>NAS 5-29352</p> <p>Acquisition and installation of the RSMAS satellite data analysis system</p> <p><i>Period</i> 06/24/86-06/24/89</p> <p><i>Prin. Invest.</i> Evans, R. Brown, O.</p>	<p>University of Miami</p> <p>2670</p> <p><i>Obligations</i> FY88: \$80,000</p> <p><i>NASA Tech. Officer</i> GSFC/Szajna, E. F. GSFC/Wolford, G.</p> <p><i>CASE Category</i> 33-Oceanography</p>	<p>TOTAL: \$551,632</p>
<p>NAG 8-656</p> <p>The effect of latent heat release on synoptic to planetary wave interactions and its implications for satellite observations</p> <p><i>Period</i> 07/15/87-07/16/89</p> <p><i>Prin. Invest.</i> Branscome, L.</p>	<p>University of Miami</p> <p>2663</p> <p><i>Obligations</i> FY88: \$61,000</p> <p><i>NASA Tech. Officer</i> MSFC/Miller, T.</p> <p><i>CASE Category</i> 41-Aero Engr</p>	<p>TOTAL: \$116,000</p>	<p>NCC 2-377</p> <p>Error analysis and prevention in highly automated transport aircraft</p> <p><i>Period</i> 10/01/85-03/31/89</p> <p><i>Prin. Invest.</i> Wiener, E.</p>	<p>University of Miami</p> <p>2671</p> <p><i>Obligations</i> FY88: \$124,498</p> <p><i>NASA Tech. Officer</i> ARC/Palmer, E. ARC/Remington, R.</p> <p><i>CASE Category</i> 69-Psych, NEC</p>	<p>TOTAL: \$334,173</p>
<p>NAGW 273</p> <p>An investigation of the utility of ocean color imagery for delineation of oceanic processes in the western North Atlantic</p> <p><i>Period</i> 11/01/81-01/31/89</p> <p><i>Prin. Invest.</i> Gordan, H. R. Brown, O. B. Evans, R. H.</p>	<p>University of Miami</p> <p>2664</p> <p><i>Obligations</i> FY88: \$357,316</p> <p><i>NASA Tech. Officer</i> HQ-EE/Yoder, J. A. HQ-EB/Wilson, W. S.</p> <p><i>CASE Category</i> 33-Oceanography</p>	<p>TOTAL: \$1,221,657</p>	<p>NCC 2-524</p> <p>Cockpit automation and social processes their joint effect on performance and safety</p> <p><i>Period</i> 01/01/88-12/31/88</p> <p><i>Prin. Invest.</i> Wiener, E. L. Curry, R. E.</p>	<p>University of Miami</p> <p>2672</p> <p><i>Obligations</i> FY88: \$42,000</p> <p><i>NASA Tech. Officer</i> ARC/Foushee, H. C. ARC/Palmer, E. A.</p> <p><i>CASE Category</i> 62-Social Aspects</p>	<p>TOTAL: \$42,000</p>
<p>NAGW 644</p> <p>Numerical model studies of the Venus atmosphere superrotation</p> <p><i>Period</i> 08/01/84-09/30/87</p> <p><i>Prin. Invest.</i> Branscome, L. Pitcher, F.</p>	<p>University of Miami</p> <p>2665</p> <p><i>Obligations</i> FY88:</p> <p><i>NASA Tech. Officer</i> HQ-EL/Fox, K. HQ-EL/Quaide, W. L.</p> <p><i>CASE Category</i> 31-Atmos Sci</p>	<p>TOTAL: \$204,636</p>	<p>NGR 10-007-008</p> <p>Research in the Institute of Molecular Evolution in the School of Environmental and Planetary Sciences</p> <p><i>Period</i> 06/09/64-09/30/88</p> <p><i>Prin. Invest.</i> Fox, S. W.</p>	<p>University of Miami</p> <p>2673</p> <p><i>Obligations</i> FY88: \$78,744</p> <p><i>NASA Tech. Officer</i> HQ-EB/Rummel, J. D. HQ-EB/Averner, M.</p> <p><i>CASE Category</i> 12-Chemistry</p>	<p>TOTAL: \$3,212,660</p>
<p>NAGW 1291</p> <p>Evaluation of satellite primary production algorithms</p> <p><i>Period</i> 03/01/88-02/28/89</p> <p><i>Prin. Invest.</i> Baich, W. M.</p>	<p>University of Miami</p> <p>2666</p> <p><i>Obligations</i> FY88: \$99,784</p> <p><i>NASA Tech. Officer</i> HQ-EE/Yoder, J. A. HQ-EE/Wilson, W. S.</p> <p><i>CASE Category</i> 33-Oceanography</p>	<p>TOTAL: \$99,784</p>	<p>NGT 00-070-010</p> <p>Graduate student researchers underrepresented minority focus program</p> <p><i>Period</i> 01/01/87-12/31/88</p> <p><i>Prin. Invest.</i> Harrison, C. A.</p>	<p>University of Miami</p> <p>2674</p> <p><i>Obligations</i> FY88: \$18,000</p> <p><i>NASA Tech. Officer</i> HQ-XE/Owens, F. C.</p> <p><i>CASE Category</i> 32-Geological Sci</p>	<p>TOTAL: \$18,000</p>
<p>NAS 5-28745</p> <p>Northern Venezuelan structural geology from LANDSAT 5 thematic mapper data</p> <p><i>Period</i> 07/30/85-11/29/88</p> <p><i>Prin. Invest.</i> Harrison, C. G.</p>	<p>University of Miami</p> <p>2667</p> <p><i>Obligations</i> FY88:</p> <p><i>NASA Tech. Officer</i> GSFC/Oseroff, H.</p> <p><i>CASE Category</i> 32-Geological Sci</p>	<p>TOTAL: \$201,714</p>	<p>NAG 1-632</p> <p>Coordinated control of dual manipulators</p> <p><i>Period</i> 05/01/86-04/30/89</p> <p><i>Prin. Invest.</i> Varanasi, M. R.</p>	<p>University of South Florida</p> <p>2675</p> <p><i>Obligations</i> FY88: \$32,761</p> <p><i>NASA Tech. Officer</i> LARC/Goode, P. W. LARC/Cornils, K.</p> <p><i>CASE Category</i> 29-Math/Cmputer, NEC</p>	<p>TOTAL: \$91,006</p>

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NAG 1-772 University of South Florida 2676
Towards building a team of intelligent robots
Period *Obligations*
05/01/87-11/15/87 FY88: TOTAL: \$27,078
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Varanasi, M. R. LARC/Goode, P. W. 29-Math/Cmputer,NEC
Mehrotra, R. LARC/Cornils, K.

NAG 2-487 University of South Florida 2677
Architectures for reasoning in parallel
Period *Obligations*
11/01/87-10/31/88 FY88: \$17,151 TOTAL: \$17,151
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hall, L. O. ARC/Lim, R. S. 22-Computer Science
ARC/Stevens, K. G.

NAG 3-851 University of South Florida 2678
Advanced solar dynamic heat receiver program development and design optimization
Period *Obligations*
01/05/88-01/04/89 FY88: \$53,138 TOTAL: \$53,138
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crane, R. A. LERC/Dustin, M. O. 46-Mech Engr
LERC/Kohout, L. L.

NAGW 465 University of South Florida 2679
Development of in-site sensors to complement ocean color remote sensing
Period *Obligations*
03/01/83-12/31/88 FY88: \$129,999 TOTAL: \$703,358
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carder, K. L. HQ-EE/Yoder, J. A. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 678 University of South Florida 2680
Simulation analysis of nonstationary CZCS series from continental shelves
Period *Obligations*
12/01/84-11/30/88 FY88: \$281,239 TOTAL: \$1,057,353
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carder, K. L. HQ-EE/Yoder, J. A. 33-Oceanography
Walsh, J. J. HQ-EE/Wilson, W. S.
Brown, O. B.

NAGW 836 University of South Florida 2681
Biogenic methane: Fluxes and isotopic composition from warm wetland environments
Period *Obligations*
10/01/85-12/31/88 FY88: \$74,946 TOTAL: \$252,293
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sackett, W. M. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
HQ-EE/Watson, R. T.

NAGW 1173 University of South Florida 2682
Global biogeography
Period *Obligations*
08/01/87-07/31/88 FY88: \$47,000 TOTAL: \$93,177
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Briggs, J. C. HQ-EB/Rummel, J. D. 51-Biological Sci

GEORGIA

NAG 1-410 Atlanta University 2683
Construction of finite difference schemes having special properties for ordinary and partial differential equations
Period *Obligations*
10/01/83-02/28/89 FY88: \$108,800 TOTAL: \$555,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mickens, R. E. LARC/Shoosmith, J. N. 21-Mathematics

NAG 1-412 Atlanta University 2684
Hybrid pattern recognition approaches to image analysis and feature detection in digitized images
Period *Obligations*
10/01/83-10/31/88 FY88: TOTAL: \$550,151
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warsi, N. A. LARC/Goode, P. W. 29-Math/Cmputer,NEC
Warsi, N.

NAG 3-113 Atlanta University 2685
Design and implementation of a networked automated laboratory
Period *Obligations*
10/20/80-01/31/89 FY88: \$35,005 TOTAL: \$496,522
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reed, J. L. LERC/Charleston, J. A. 19-Phys Sci, NEC
LERC/O'donnell, P. M.

NAG 3-777 Atlanta University 2686
Theoretical investigation of amorphous silicon systems
Period *Obligations*
02/01/87-09/30/88 FY88: TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Neal, H. L. LERC/Flood, D. J. 13-Physics
LERC/Good, B. L.

NGT 00-050-106 Atlanta University 2687
NASA graduate student researchers program
Period *Obligations*
08/15/86-08/14/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warsi, N. A. HQ-LE/Owens, F. C. 22-Computer Science

NAS 2-10527 Emory University 2688
Cardiovascular adaptation of white rats to decreased gravity of Space Shuttle/Spacelab inflight conditions
Period *Obligations*
01/17/80-12/31/90 FY88: \$172,000 TOTAL: \$1,059,001
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Popovic, V. ARC/Schmidt, G. K. 51-Biological Sci

NAS 2-12829 Emory University 2689
Analysis of biosamples from Cosmos 1887 biosatellite mission
Period *Obligations*
05/09/88-09/15/88 FY88: \$40,280 TOTAL: \$40,280
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Merrill, A. H. ARC/Connolly, J. P. 51-Biological Sci

NAG 1-50 Georgia Institute of Technology 2690
Development of an airborne laser photofragmentation
Period *Obligations*
03/01/80-06/30/89 FY88: \$340,698 TOTAL: \$2,505,799
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davis, D. D. LARC/Browell, E. V. 31-Atmos Sci
Bradshaw, J. D. LARC/Carter, A. F.
Rodgers, M. O.

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NAG 1-392 Georgia Institute of Technology 2691
Modeling of transient heat pipe operation
Period *Obligations*
08/19/83-12/31/88 FY88: \$20,000 TOTAL: \$215,700
Prin. Invest. NASA Tech. Officer CASE Category
Colwell, G. T. LARC/Camarda, C. J. 46-Mech Engr
Hartley, J. G. LARC/Robinson, J. C.

NAG 1-660 Georgia Institute of Technology 2699
Singular perturbation analysis of aeroassisted orbital transfer vehicles (AOTVS) related trajectory optimization problems
Period *Obligations*
03/11/86-10/31/89 FY88: TOTAL: \$123,471
Prin. Invest. NASA Tech. Officer CASE Category
Calise, A. J. LARC/Moerger, D. D. 42-Astro Engr
LARC/Price, D. B.

NAG 1-430 Georgia Institute of Technology 2692
A support architecture for reliable distributed computing systems
Period *Obligations*
11/09/83-12/08/88 FY88: \$45,043 TOTAL: \$231,915
Prin. Invest. NASA Tech. Officer CASE Category
Lablanc, R. J. LARC/Murray, N. D. 22-Computer Science
Daseupta, P. LARC/Will, R. W.

NAG 1-693 Georgia Institute of Technology 2700
Implementation and validation of a wake model for vortex surface interactions in low speed forward flight
Period *Obligations*
10/01/86-11/30/87 FY88: TOTAL: \$28,291
Prin. Invest. NASA Tech. Officer CASE Category
Komerath, N. M. LARC/Berry, J. D. 41-Aero Engr

NAG 1-551 Georgia Institute of Technology 2693
Development of emulation simulation thermal control model for space station application
Period *Obligations*
01/01/85-12/31/87 FY88: TOTAL: \$155,297
Prin. Invest. NASA Tech. Officer CASE Category
Colwell, G. T. LARC/Hall, J. B. 13-Physics
Hartley, J. G. LARC/Farmer, J. T.

NAG 1-710 Georgia Institute of Technology 2701
Integration of dynamic aerodynamic and structural optimization of helicopter rotor blades
Period *Obligations*
10/14/86-10/13/88 FY88: \$84,000 TOTAL: \$167,902
Prin. Invest. NASA Tech. Officer CASE Category
Peters, D. A. LARC/Adelman, H. M. 41-Aero Engr
LARC/Pritchard, J. I.

NAG 1-566 Georgia Institute of Technology 2694
Sound propagation over uneven ground and irregular topography
Period *Obligations*
02/01/85-01/31/89 FY88: \$85,650 TOTAL: \$320,804
Prin. Invest. NASA Tech. Officer CASE Category
Pierce, A. D. LARC/Preisser, J. S. 13-Physics
Main, G. L. LARC/Willshire, W. L., Jr.
Berthelot, Y. H.

NAG 1-784 Georgia Institute of Technology 2702
Trajectory optimization and guidance law development for NASP applications
Period *Obligations*
07/01/87-10/31/88 FY88: \$4,800 TOTAL: \$54,800
Prin. Invest. NASA Tech. Officer CASE Category
Calise, A. J. LARC/Moerder, D. D. 41-Aero Engr
Flandro, G. A. LARC/Price, D. B.

NAG 1-586 Georgia Institute of Technology 2695
Theoretical and material studies of thin-film electroluminescent devices
Period *Obligations*
05/01/85-12/31/88 FY88: TOTAL: \$183,490
Prin. Invest. NASA Tech. Officer CASE Category
Summers, C. J. LARC/Robertson, J. B. 13-Physics
Brennan, K. F.

NAG 1-786 Georgia Institute of Technology 2703
Diagnostic studies of the HXOY NXOY O3 photochemical system using data from NASA global tropospheric experiment field expeditions
Period *Obligations*
07/01/87-07/31/89 FY88: \$92,205 TOTAL: \$180,705
Prin. Invest. NASA Tech. Officer CASE Category
Chameides, W. J. LARC/Reichle, H. G., Jr. 31-Atmos Sci
LARC/Wallio, H. A.

NAG 1-623 Georgia Institute of Technology 2696
High speed precision motion strategies for lightweight structures
Period *Obligations*
11/15/85-02/28/89 FY88: \$45,000 TOTAL: \$144,880
Prin. Invest. NASA Tech. Officer CASE Category
Book, W. J. LARC/Soloway, D. 46-Mech Engr

NAG 1-818 Georgia Institute of Technology 2704
Two photon laser induced fluorescence sensor for the detection of atmospheric hydroxyl radicals
Period *Obligations*
10/01/87-06/30/89 FY88: \$30,000 TOTAL: \$178,091
Prin. Invest. NASA Tech. Officer CASE Category
Bradshaw, J. D. LARC/Browell, E. V. 31-Atmos Sci
LARC/Carter, A. F.

NAG 1-637 Georgia Institute of Technology 2697
Analysis of delamination related fracture processes in composites
Period *Obligations*
02/12/86-09/25/88 FY88: TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer CASE Category
Rehfield, L. W. LARC/O'Brien, T. K. 47-Materials Engr
Armanios, E. A. LARC/Murri, G. B.

NAG 1-864 Georgia Institute of Technology 2705
Electrostatic fluidized bed coating
Period *Obligations*
04/01/88-11/30/88 FY88: \$45,780 TOTAL: \$45,780
Prin. Invest. NASA Tech. Officer CASE Category
Muzzy, J. D. LARC/Baucom, R. M. 12-Chemistry
Tincher, B. W. LARC/Nelson, J. B.

NAG 1-638 Georgia Institute of Technology 2698
Analysis, design and elastic tailoring of composite rotor blades
Period *Obligations*
02/12/86-06/11/87 FY88: TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Rehfield, L. W. LARC/Nixon, M. W. 41-Aero Engr
LARC/Farley, G. L.

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NAG 2-123 Georgia Institute of Technology 2706
Pilot interaction with automated airborne decision making systems
Period Obligations
08/21/81-12/31/87 FY88: TOTAL: \$753,508
Prin. Invest. NASA Tech. Officer CASE Category
Rouse, W. B. ARC/Palmer, E. A. 69-Psych, NEC
Hammer, J. M. ARC/Remington, R. W.
Govindaraj, T.

NAG 2-413 Georgia Institute of Technology 2707
An approach to cognitive task analysis in supervisory control systems
Period Obligations
09/01/86-09/30/88 FY88: \$110,402 TOTAL: \$160,402
Prin. Invest. NASA Tech. Officer CASE Category
Mitchell, C. M. ARC/Palmer, E. A. 49-Engr, NEC
ARC/Remington, R. W.

NAG 2-462 Georgia Institute of Technology 2708
Development of an unsteady wake theory appropriate for aeroelastic analysis of rotors in hover and forward flight
Period Obligations
07/01/87-06/30/89 FY88: \$74,331 TOTAL: \$149,330
Prin. Invest. NASA Tech. Officer CASE Category
Peters, D. A. ARC/Lau, B. H. 41-Aero Engr
ARC/Piziali, R. A.

NAG 2-463 Georgia Institute of Technology 2709
Optimal route planning and obstacle avoidance for nap-of-the Earth helicopter flight guidance
Period Obligations
07/01/87-10/31/88 FY88: \$56,073 TOTAL: \$66,073
Prin. Invest. NASA Tech. Officer CASE Category
Menon, P. K. ARC/Cheng, V. H. 41-Aero Engr

NAG 2-515 Georgia Institute of Technology 2710
Pioneer Venus radio occultation or data reduction profiles of a 13cm absorptivity
Period Obligations
07/01/88-06/30/89 FY88: \$34,828 TOTAL: \$34,828
Prin. Invest. NASA Tech. Officer CASE Category
Steffes, P. G. ARC/Lasher, L. E. 11-Astronomy
ARC/Fimmel, R. O.

NAG 3-503 Georgia Institute of Technology 2711
Micromechanistic deformation response of anisotropic alloys under repeated loading
Period Obligations
12/15/83-12/31/88 FY88: \$19,926 TOTAL: \$307,409
Prin. Invest. NASA Tech. Officer CASE Category
Antolovich, S. D. LERC/Verrilli, M. J. 47-Materials Engr
Milligan, W. W. LERC/MacKay, R. A.
McDowell, D.

NAG 3-534 Georgia Institute of Technology 2712
Analysis of shell type structures subjected to time dependent mechanical and thermal loading
Period Obligations
04/15/84-04/10/89 FY88: \$75,376 TOTAL: \$352,620
Prin. Invest. NASA Tech. Officer CASE Category
Simitses, G. J. LERC/Chamis, C. C. 41-Aero Engr
Riff, R. LERC/Hopkins, D. A.

NAG 3-730 Georgia Institute of Technology 2713
Numerical investigations of stall flutter phenomena
Period Obligations
06/01/86-04/28/89 FY88: \$25,442 TOTAL: \$44,993
Prin. Invest. NASA Tech. Officer CASE Category
Sankar, L. N. LERC/Kaza, K. R. 41-Aero Engr

NAG 3-750 Georgia Institute of Technology 2714
Adaptation of piston manometer apparatus to investigation of material degradation in space environments
Period Obligations
11/01/86-10/31/88 FY88: TOTAL: \$3,000
Prin. Invest. NASA Tech. Officer CASE Category
Livesay, B. R. LERC/Warshawsky, I. 46-Mech Engr
LERC/Wenger, N.

NAG 3-768 Georgia Institute of Technology 2715
Unsteady viscous flows using a two equation model of turbulence
Period Obligations
01/01/87-12/30/88 FY88: \$19,960 TOTAL: \$39,960
Prin. Invest. NASA Tech. Officer CASE Category
Sankar, L. N. LERC/Huff, D. L. 49-Engr, NEC
Wu, J. C.

NAG 3-895 Georgia Institute of Technology 2716
Parallel processing for the analysis of turbo machinery bladed disk assemblies
Period Obligations
06/16/88-06/15/89 FY88: \$25,008 TOTAL: \$25,008
Prin. Invest. NASA Tech. Officer CASE Category
Kamat, M. LERC/Kaza, K. R. 41-Aero Engr

NAG 5-592 Georgia Institute of Technology 2717
Aircraft measurements of aerosol scattering and absorption
Period Obligations
07/15/85-01/31/87 FY88: TOTAL: \$20,920
Prin. Invest. NASA Tech. Officer CASE Category
Patterson, E. M. GSFC/Fraser, R. S. 54-Env Biology

NAG 5-1044 Georgia Institute of Technology 2718
Human computer interaction in distributed supervisory control tasks
Period Obligations
04/15/88-04/14/89 FY88: \$120,000 TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer CASE Category
Mitchell, C. M. GSFC/Truskowski, W. F. 22-Computer Science

NAG 8-78 Georgia Institute of Technology 2719
Improvements in the global reference atmospheric model and comparisons with a global 3 D numerical model
Period Obligations
09/23/86-09/22/89 FY88: \$168,610 TOTAL: \$354,733
Prin. Invest. NASA Tech. Officer CASE Category
Justus, C. G. MSFC/Johnson, D. 32-Geological Sci
Alyea, T. N. MSFC/Smith, G.

NAG 8-103 Georgia Institute of Technology 2720
Determination of strength and fracture mechanics parameters of glass materials for space related applications
Period Obligations
04/29/88-04/28/89 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Tucker, D. S. MSFC/Harwell, R. J. 47-Materials Engr
MSFC/Nichols, R. L.

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NAG 8-626 Georgia Institute of Technology 2721
Measurements of aerosol properties needed to infer backscatter characteristics in support of NASA Doppler lidar program

<i>Period</i>	<i>Obligations</i>	
03/30/87-03/29/89	FY88: \$75,810	TOTAL: \$140,190
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Patterson, E. M.	MSFC/Fitzjarrald, D.	39-Env Sci, NEC

NAG 8-713 Georgia Institute of Technology 2722
Dynamic crystallization control hardware

<i>Period</i>	<i>Obligations</i>	
03/21/88-03/21/89	FY88: \$94,441	TOTAL: \$94,441
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suddath, F. L.	MSFC/Snyder, R. S.	12-Chemistry

NAGW 533 Georgia Institute of Technology 2723
Laboratory evaluation of microwaves absorption properties under simulated conditions for planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
02/01/84-01/31/89	FY88: \$67,511	TOTAL: \$339,160
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Steffes, P. G.	HQ-EL/Fox, K.	31-Atmos Sci
	HQ-EL/Quaide, W. L.	

NAGW 698 Georgia Institute of Technology 2724
Theoretical studies of the chemical, microphysical, and dynamical effects of volcanic intermissions on the stratosphere

<i>Period</i>	<i>Obligations</i>	
01/01/85-12/31/87	FY88:	TOTAL: \$193,032
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kiang, C. S.	HQ-EE/Schiffer, R. A.	31-Atmos Sci
Justus, C. G.		

NAGW 729 Georgia Institute of Technology 2725
Global atmospheric gases experiment gage

<i>Period</i>	<i>Obligations</i>	
11/01/84-10/31/88	FY88: \$95,978	TOTAL: \$377,438
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alyea, F. N.	HQ-EE/Jackman, C. H.	31-Atmos Sci
Cunnold, D. M.	HQ-EE/Butler, D. M.	

NAGW 1001 Georgia Institute of Technology 2726
Laboratory investigation of stratospheric bromine chemistry

<i>Period</i>	<i>Obligations</i>	
01/01/87-12/31/88	FY88: \$110,000	TOTAL: \$215,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wine, P. H.	HQ-EE/Kurylo, M. J.	31-Atmos Sci
Nicovich, J. M.	HQ-EE/Margitan, J. J.	
Hynes, A. J.		

NAGW 1380 Georgia Institute of Technology 2727
Current driven double layers in a strongly magnetized laboratory plasma

<i>Period</i>	<i>Obligations</i>	
03/01/88-02/28/89	FY88: \$17,000	TOTAL: \$17,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hayes, M. A.	HQ-ES/Desch, M. D.	13-Physics
	HQ-ES/Eastman, T. E.	

NAS 1-14654 Georgia Institute of Technology 2728
Investigation of the effects of long duration exposure on active optical system components

<i>Period</i>	<i>Obligations</i>	
10/14/76-12/31/91	FY88:	TOTAL: \$329,518
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blue, M. D.	LARC/Clark, L. G.	45-Elec Engr
Gallagher, J. J.	LARC/Battista, J. D.	
Shackelford, R. G.		

NAS 1-15370 Georgia Institute of Technology 2729
Holographic data storage crystals experiment for the long duration exposure facility (LDEF)

<i>Period</i>	<i>Obligations</i>	
04/21/78-12/31/91	FY88:	TOTAL: \$46,808
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gaylord, T. K.	LARC/O'neal, R. L.	45-Elec Engr
Callen, W. R.	LARC/Clark, L. G.	

NAS 1-18447 Georgia Institute of Technology 2730
Earth Radiation Budget Satellite stratospheric aerosol and gas experiment

<i>Period</i>	<i>Obligations</i>	
02/05/87-02/05/90	FY88: \$15,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grams, G. W.	LARC/Maddrea, G. L.	31-Atmos Sci

NAS 1-18487 Georgia Institute of Technology 2731
ERBS SAGE II scientific investigation

<i>Period</i>	<i>Obligations</i>	
04/15/87-04/14/90	FY88: \$60,000	TOTAL: \$130,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	LARC/Maddrea, G. L.	31-Atmos Sci
	LARC/McMaster, L. R.	

NAS 5-27264 Georgia Institute of Technology 2732
The prediction of the dynamical impact of changes in stratospheric ozone

<i>Period</i>	<i>Obligations</i>	
07/01/82-02/28/90	FY88: \$154,340	TOTAL: \$353,961
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D.	GSFC/Reber, C.	31-Atmos Sci

NAS 5-28575 Georgia Institute of Technology 2733
Human-computer interaction in supervisory control tasks cognitive models and computer aids

<i>Period</i>	<i>Obligations</i>	
11/21/84-03/21/88	FY88:	TOTAL: \$324,236
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mitchell, C. M.	GSFC/Truskowski, W. F.	22-Computer Science

NAS 8-35048 Georgia Institute of Technology 2734
Ion implantation and plating to improve surface hardness and wear characteristics of 440 stainless steel for bearing application

<i>Period</i>	<i>Obligations</i>	
09/22/82-05/31/87	FY88:	TOTAL: \$344,335
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grenga, H. E.	MSFC/Thom, R.	13-Physics
Hochman, R. F.	MSFC/Dolan, F.	

NAS 8-37142 Georgia Institute of Technology 2735
Advanced microwave precipitation radiometer for the remote observation of precipitation and storm structure

<i>Period</i>	<i>Obligations</i>	
12/31/87-03/30/90	FY88: \$284,903	TOTAL: \$284,903
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gagliano, J.	MSFC/Spencer, R.	31-Atmos Sci

NAS 9-17381 Georgia Institute of Technology 2736
Space station antenna systems

<i>Period</i>	<i>Obligations</i>	
05/01/85-04/30/90	FY88:	TOTAL: \$250,811
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cooke, W. P.	JSC/Eggers, D. S.	49-Engr, NEC
Dunn, A. G.		

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NAS 9-17445 Georgia Institute of Technology 2737
Space station antenna test bed scanner measurement system design, evaluation, analysis and interface
Period *Obligations*
07/01/85-09/01/88 FY88: TOTAL: \$351,800
Prin. Invest. NASA Tech. Officer CASE Category
Cooke, B. JSC/Tang, S. 45-Elec Engr

NCA 2-159 Georgia Institute of Technology 2738
Helicopter stability and control modelling improvements and verification on two helicopters
Period *Obligations*
09/01/86-10/15/88 FY88: TOTAL: \$71,816
Prin. Invest. NASA Tech. Officer CASE Category
Schrage, D. P. ARC/Decker, W. A. 41-Aero Engr
Peters, D. A. ARC/Key, D. L.

NCA 2-266 Georgia Institute of Technology 2739
The effects of rotating frame turbulence RFT on helicopter flight mechanics loads and vibration
Period *Obligations*
10/01/87-09/30/89 FY88: \$39,877 TOTAL: \$39,877
Prin. Invest. NASA Tech. Officer CASE Category
Schrage, D. P. ARC/Atencio, A. 41-Aero Engr
Jonnalagadda, V. R. ARC/McFarland, R. E.

NCC 2-506 Georgia Institute of Technology 2740
Aircraft pursuit evasion and min time interception algorithms for the F 15 aircraft
Period *Obligations*
11/01/87-10/31/88 FY88: \$72,662 TOTAL: \$72,662
Prin. Invest. NASA Tech. Officer CASE Category
Menon, P. K. ARC/Duke, E. L. 41-Aero Engr
Calise, A. J. LARC/Gracey, C.

NGT 00-050-208 Georgia Institute of Technology 2741
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Suddath, F. L. HQ-XE/Owens, F. C. 12-Chemistry

NGT 00-050-369 Georgia Institute of Technology 2742
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Lipkin, H. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-387 Georgia Institute of Technology 2743
NASA graduate student researchers program
Period *Obligations*
09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Menon, P. K. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 00-070-047 Georgia Institute of Technology 2744
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Chameides, W. L. HQ-XE/Owens, F. C. 31-Atmos Sci

NGT 00-070-061 Georgia Institute of Technology 2745
Graduate student researchers underrepresented minority focus program
Period *Obligations*
10/01/87-09/30/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Davis, D. HQ-XE/Owens, F. C. 31-Atmos Sci

NGT 00-090-010 Georgia Institute of Technology 2746
Principals leadership workshop for the 1988 SECME institute
Period *Obligations*
05/19/88-09/19/88 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Chesnutt, C. C. HQ-U/Margolis, M. 49-Engr, NEC

NGT 11-005-800 Georgia Institute of Technology 2747
NASA graduate student researchers program
Period *Obligations*
09/15/85-09/14/88 FY88: \$18,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Uyemura, J. P. HQ-XE/Owens, F. C. 45-Elec Engr

NSG 2356 Georgia Institute of Technology 2748
Development of molded, coated fabric joints
Period *Obligations*
12/01/78-12/31/87 FY88: TOTAL: \$322,663
Prin. Invest. NASA Tech. Officer CASE Category
Olson, L. H. ARC/Vykukal, H. C. 49-Engr, NEC
Freeston, D.

NAG 5-496 Georgia Southern College 2749
Laboratory studies of small carbon granules
Period *Obligations*
02/01/85-03/31/89 FY88: \$16,100 TOTAL: \$56,295
Prin. Invest. NASA Tech. Officer CASE Category
Nelson, R. H. GSFC/Donn, B. 12-Chemistry
GSFC/Nuth, J. A.

NAG 9-265 Georgia Southern College 2750
The HBCU program A needs assessment and technical capability
Period *Obligations*
01/01/88-12/31/88 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
Tryman, N. D. JSC/Atkinson, J. D. 75-Political Sci

NAG 2-438 Georgia State University 2751
Selection of behavioral tasks and development of software for evaluation of rhesus monkey behavior during spaceflight
Period *Obligations*
03/01/87-02/28/89 FY88: \$102,500 TOTAL: \$142,500
Prin. Invest. NASA Tech. Officer CASE Category
Rumbaugh, D. M. ARC/Ballard, R. W. 51-Biological Sci
Rumbaugh, E. S. ARC/Winget, C. M.
Richardson, W. K.

NAG 5-808 Georgia State University 2752
Ultraviolet observation of astronomical sources
Period *Obligations*
07/15/86-08/31/87 FY88: TOTAL: \$14,007
Prin. Invest. NASA Tech. Officer CASE Category
Miller, H. R. GSFC/Kondo, Y. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NAG 1-712 Spelman College 2753
Two dimensional data compression and restoration
Period Obligations
11/01/86-01/15/89 FY88: \$99,989 TOTAL: \$197,472
Prin. Invest. NASA Tech. Officer CASE Category
Martin, B. J. LARC/Goode, P. W. 29-Math/Cmputer,NEC
Bozeman, S. T.

NGT 00-090-003 Spelman College 2754
Women science and engineering scholars program
Period Obligations
12/01/86-08/31/89 FY88: \$656,927 TOTAL: \$856,389
Prin. Invest. NASA Tech. Officer CASE Category
Falconer, E. HQ/White, B. 49-Engr, NEC

NGT 00-090-018 Spelman College 2755
Pre freshman science and engineering program
Period Obligations
06/12/88-06/11/89 FY88: \$54,386 TOTAL: \$54,386
Prin. Invest. NASA Tech. Officer CASE Category
Hibbard, L. HQ-U/Margolis, M. 49-Engr, NEC
Falconer, E.

NAG 5-516 University of Georgia 2756
Comparison of simulation modeling and satellite techniques for monitoring ecological processes
Period Obligations
04/01/85-12/31/87 FY88: TOTAL: \$48,649
Prin. Invest. NASA Tech. Officer CASE Category
Box, E. O. GSFC/Tucker, J. 59-Life Sci, NEC
Tucker, C. J.

NAG 5-974 University of Georgia 2757
First observations of the pleiodes transition region line
Period Obligations
09/01/87-06/30/89 FY88: \$11,300 TOTAL: \$15,446
Prin. Invest. NASA Tech. Officer CASE Category
Caillault, J. P. GSFC/Kondo, Y. 11-Astronomy
Linsky, J. L.
Vilthu, O.

NAGW 1034 University of Georgia 2758
Using the thermareil from a forest
Period Obligations
02/01/87-09/30/89 FY88: \$35,552 TOTAL: \$58,436
Prin. Invest. NASA Tech. Officer CASE Category
Teskey, R. O. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
Luvall, J. C. HQ-EE/Ruzek, M. J.

NAGW 1338 University of Georgia 2759
Comparison of simulation modeling and satellite techniques for monitoring global ecology
Period Obligations
07/01/88-06/30/89 FY88: \$4,993 TOTAL: \$4,993
Prin. Invest. NASA Tech. Officer CASE Category
Box, E. O. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
HQ-EE/Ruzek, M. J.

NAG13-10 University of Georgia 2760
Thermal modeling of tropical forest land cover from multisensor imagery
Period Obligations
09/22/88-09/21/89 FY88: \$35,625 TOTAL: \$35,625
Prin. Invest. NASA Tech. Officer CASE Category
Welch, R. A. NSTL/Luvall, J. C. 54-Env Biology

NASW 4194 University of Georgia 2761
Operation of a computer software management and information center
Period Obligations
07/01/86-07/01/88 FY88: \$306,836 TOTAL: \$587,750
Prin. Invest. NASA Tech. Officer CASE Category
Carmon, J. L. HQ/Ault, L. 99-Multi-Discip

HAWAII

NAG 2-418 University of Hawaii - Manoa 2762
Submillimeter observations of solar continuum brightness variations
Period Obligations
01/01/87-03/31/89 FY88: \$55,000 TOTAL: \$113,060
Prin. Invest. NASA Tech. Officer CASE Category
Becklin, E. E. ARC/Haughney, L. C. 11-Astronomy
Werner, M. W.

NAG 2-424 University of Hawaii - Manoa 2763
Space infrared telescope facility project
Period Obligations
08/01/86-07/31/88 FY88: TOTAL: \$13,314
Prin. Invest. NASA Tech. Officer CASE Category
Cruikshank, D. P. ARC/Ramos, R. 11-Astronomy
ARC/Manning, L. A.

NAG 5-146 University of Hawaii - Manoa 2764
Magnesium observations of a young cluster
Period Obligations
03/15/81-10/31/89 FY88: \$132,922 TOTAL: \$452,546
Prin. Invest. NASA Tech. Officer CASE Category
Simon, T. GSFC/Kondo, Y. 11-Astronomy
Carpenter, K.
Praderie, F.

NAG 5-744 University of Hawaii - Manoa 2765
Solar observations for the Solar Maximum Mission
Period Obligations
04/01/86-10/31/89 FY88: \$74,614 TOTAL: \$225,923
Prin. Invest. NASA Tech. Officer CASE Category
Canfield, R. C. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Gurman, J. B.

NAG 5-829 University of Hawaii - Manoa 2766
Ultraviolet emission line studies in the core of X ray luminous clusters
Period Obligations
08/01/86-07/31/88 FY88: TOTAL: \$12,711
Prin. Invest. NASA Tech. Officer CASE Category
Cowie, L. L. GSFC/Kondo, Y. 11-Astronomy
Hu, E.

NAG 5-931 University of Hawaii - Manoa 2767
Coding for efficient and reliable satellite and space communications
Period Obligations
07/01/87-06/30/89 FY88: \$65,000 TOTAL: \$117,271
Prin. Invest. NASA Tech. Officer CASE Category
Lin, S. GSFC/Morakis, J. C. 49-Engr, NEC
GSFC/Miller, W. H.

**NASA'S UNIVERSITY PROGRAM
HAWAII (Continued)**

NAG 5-993 University of Hawaii - Manoa 2768
 Ultraviolet studies of extended emission-line regions around quasi-stellar objects
Period *Obligations*
 09/15/87-09/14/89 FY88: TOTAL: \$14,800
Prin. Invest. NASA Tech. Officer CASE Category
 Hu, E. M. GSFC/Kondo, Y. 11-Astronomy
 Stockton, A.
 Cowie, L. L.

NAGW 437 University of Hawaii - Manoa 2776
 Analysis of Martian surface materials using radar thermal and color data and geological evolution of the cavity created hemisphere of Mars
Period *Obligations*
 04/01/83-02/28/89 FY88: \$40,000 TOTAL: \$257,933
Prin. Invest. NASA Tech. Officer CASE Category
 Mark, P. M. HQ-EL/Underwood, J. R. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAG 5-1072 University of Hawaii - Manoa 2769
 Chromospheric evaporation in flares and active regions
Period *Obligations*
 10/01/88-09/30/89 FY88: \$29,638 TOTAL: \$29,638
Prin. Invest. NASA Tech. Officer CASE Category
 Camfield, R. G. GSFC/Bullock, G. D. 19-Phys Sci, NEC
 GSFC/Gurman, J. B.

NAGW 498 University of Hawaii - Manoa 2777
 Thermophysics of satellites and asteroids
Period *Obligations*
 10/01/83-09/30/88 FY88: TOTAL: \$27,000
Prin. Invest. NASA Tech. Officer CASE Category
 Morrison, D. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Holt, H. E.

NAG 8-634 University of Hawaii - Manoa 2770
 A preliminary data base for the NASA Doppler lidar program
Period *Obligations*
 08/01/87-07/31/89 FY88: \$71,639 TOTAL: \$164,097
Prin. Invest. NASA Tech. Officer CASE Category
 Clarke, A. D. MSFC/Fitzjarrald, D. E. 31-Atmos Sci
 MSFC/Miller, T. L.

NAGW 583 University of Hawaii - Manoa 2778
 Volatile migration and phase changes on Mars
Period *Obligations*
 02/01/84-01/31/89 FY88: \$65,000 TOTAL: \$294,999
Prin. Invest. NASA Tech. Officer CASE Category
 Fanale, F. P. HQ-EL/Underwood, J. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAG 8-730 University of Hawaii - Manoa 2771
 Mass in flow studies of cooling flow clusters
Period *Obligations*
 06/01/88-05/31/89 FY88: \$37,845 TOTAL: \$37,845
Prin. Invest. NASA Tech. Officer CASE Category
 Cowie, L. L. MSFC/Harper, B. 11-Astronomy

NAGW 589 University of Hawaii - Manoa 2779
 Satellite surface compositional units
Period *Obligations*
 02/01/84-11/30/88 FY88: \$20,000 TOTAL: \$164,000
Prin. Invest. NASA Tech. Officer CASE Category
 McCord, T. B. HQ-EL/Underwood, J. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAG 8-738 University of Hawaii - Manoa 2772
 Evolution of X ray emission of clusters of galaxies
Period *Obligations*
 07/01/88-06/30/89 FY88: \$37,423 TOTAL: \$37,423
Prin. Invest. NASA Tech. Officer CASE Category
 Henry, J. P. MSFC/Harper, B. A. 11-Astronomy

NAGW 633 University of Hawaii - Manoa 2780
 Volatiles on planetary satellites
Period *Obligations*
 06/21/84-11/20/88 FY88: \$50,533 TOTAL: \$243,533
Prin. Invest. NASA Tech. Officer CASE Category
 Fanale, F. P. HQ-EL/Underwood, J. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAG 9-153 University of Hawaii - Manoa 2773
 Thermodynamics and kinetics of water regolith interactions on Mars
Period *Obligations*
 09/01/86-11/01/87 FY88: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
 Muenow, D. JSC/Gooding, J. 19-Phys Sci, NEC

NAGW 712 University of Hawaii - Manoa 2781
 Spectral studies of possible asteroid materials
Period *Obligations*
 01/01/85-12/31/88 FY88: \$35,000 TOTAL: \$140,000
Prin. Invest. NASA Tech. Officer CASE Category
 Bell, J. F. HQ-EL/Underwood, J., Jr. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAGW 133 University of Hawaii - Manoa 2774
 Volatile evolution
Period *Obligations*
 02/01/81-01/31/89 FY88: \$40,000 TOTAL: \$397,649
Prin. Invest. NASA Tech. Officer CASE Category
 Fanale, F. P. HQ-EL/Underwood, J. R. 32-Geological Sci
 Taylor, G. J. HQ-EL/Boyce, J. M.
 Johnson, S.

NAGW 723 University of Hawaii - Manoa 2782
 Modeling of the solar chromosphere by submillimeter observations of solar comb
Period *Obligations*
 03/15/85-03/31/89 FY88: \$30,000 TOTAL: \$143,000
Prin. Invest. NASA Tech. Officer CASE Category
 Lindsey, C. HQ-ES/Ahluwalia, H. S. 13-Physics

NAGW 237 University of Hawaii - Manoa 2775
 Geologic studies of planetary volcanic and impact processes
Period *Obligations*
 08/01/81-10/31/88 FY88: \$62,000 TOTAL: \$410,347
Prin. Invest. NASA Tech. Officer CASE Category
 Hawke, B. R. HQ-EL/Scott, D. H. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAGW 755 University of Hawaii - Manoa 2783
 Characterization of infrared detector arrays
Period *Obligations*
 06/15/85-11/30/88 FY88: \$346,000 TOTAL: \$1,043,986
Prin. Invest. NASA Tech. Officer CASE Category
 Hall, D. N. HQ-EZ/Stachnik, R. V. 13-Physics
 HQ-EZ/Weiler, E. J.

**NASA'S UNIVERSITY PROGRAM
HAWAII (Continued)**

NAGW 802 University of Hawaii - Manoa 2784
Infrared spectral studies of asteroids
Period Obligations
09/01/85-12/31/88 FY88: \$38,690 TOTAL: \$110,405
Prin. Invest. NASA Tech. Officer CASE Category
Bell, W. J. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAGW 1299 University of Hawaii - Manoa 2792
Mid infrared spectroscopy of the Moon and Mars
Period Obligations
05/01/88-04/30/89 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Lucey, P. G. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. M.

NAGW 864 University of Hawaii - Manoa 2785
Radiating solar plasma
Period Obligations
02/01/86-01/31/89 FY88: \$128,000 TOTAL: \$449,000
Prin. Invest. NASA Tech. Officer CASE Category
Canfield, R. C. HQ-ES/Ahluwalia, H. S. 13-Physics

NAGW 1345 University of Hawaii - Manoa 2793
Geologic mapping in nw elysium planitia Mars
Period Obligations
05/01/88-04/31/89 FY88: \$21,587 TOTAL: \$21,587
Prin. Invest. NASA Tech. Officer CASE Category
Mouginis Mark, P. J. HQ-EL/Underwood, J. R. 32-Geological Sci

NAGW 927 University of Hawaii - Manoa 2786
Physical properties of asteroid family members
Period Obligations
07/01/86-11/30/88 FY88: \$20,000 TOTAL: \$87,335
Prin. Invest. NASA Tech. Officer CASE Category
Gradie, J. C. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1383 University of Hawaii - Manoa 2794
Reflectance spectroscopy of phobos and Deimos
Period Obligations
07/01/88-06/30/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Bell, J. F. HQ-EL/Rahe, J. H. 11-Astronomy

NAGW 959 University of Hawaii - Manoa 2787
Interstellar and intergalactic gas
Period Obligations
07/11/86-07/31/88 FY88: TOTAL: \$71,061
Prin. Invest. NASA Tech. Officer CASE Category
Cowie, L. L. HQ-EZ/Stachnik, R. V. 11-Astronomy
HQ-EZ/Bogges, N.

NAGW 1385 University of Hawaii - Manoa 2795
Ultra high resolution Earth based lunar radar
Period Obligations
03/01/88-02/28/89 FY88: \$43,630 TOTAL: \$43,630
Prin. Invest. NASA Tech. Officer CASE Category
Zisk, S. H. HQ-EL/Underwood, J. R. 32-Geological Sci

NAGW 1053 University of Hawaii - Manoa 2788
Regional planetary image center
Period Obligations
11/15/86-11/14/88 FY88: \$30,113 TOTAL: \$55,495
Prin. Invest. NASA Tech. Officer CASE Category
Hawke, B. R. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Scott, D.

NAGW 1421 University of Hawaii - Manoa 2796
Mineralogical mapping of the lunar surface
Period Obligations
03/01/88-02/28/89 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
Lucey, P. G. HQ-EL/Underwood, J. R. 32-Geological Sci

NAGW 1084 University of Hawaii - Manoa 2789
Structural and volcanic evolution of Martian and terrestrial shield volcanoes
Period Obligations
05/01/87-04/30/89 FY88: TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Mouginis Mark, P. J. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1454 University of Hawaii - Manoa 2797
Solar imaging vector magnetograph
Period Obligations
08/01/88-07/31/89 FY88: \$200,000 TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Canfield, R. C. HQ-ES/Bohlin, J. D. 13-Physics
HQ-ES/Bohlin, J. D.

NAGW 1162 University of Hawaii - Manoa 2790
Testing a model for the morphologic evolution of volcanoes in the Galapagos
Period Obligations
09/01/87-08/30/88 FY88: TOTAL: \$104,946
Prin. Invest. NASA Tech. Officer CASE Category
Mark, P. J. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Murphy, R. E.

NAS 5-28403 University of Hawaii - Manoa 2798
Establishment operation and maintenance of a command and control capability for the ATS 1 spacecraft
Period Obligations
01/06/84-09/30/87 FY88: TOTAL: \$257,655
Prin. Invest. NASA Tech. Officer CASE Category
Longfield, D. GSFC/Wales, R. O. 49-Engr, NEC

NAGW 1216 University of Hawaii - Manoa 2791
Theoretical and photometric analysis of water volcanism on the moon of urans
Period Obligations
09/15/87-09/14/88 FY88: \$25,534 TOTAL: \$51,068
Prin. Invest. NASA Tech. Officer CASE Category
Wilson, L. HQ-EL/Quaide, W. L. 19-Phys Sci, NEC
HQ-EL/Underwood, J.

NAS 5-28595 University of Hawaii - Manoa 2799
Modification to and maintenance and operation of the lunar and satellite laser ranging ground station equipment at Mt. Haleakala Maui Hawaii in support of lunar and satellite tracking missions
Period Obligations
10/01/84-12/14/88 FY88: \$654,000 TOTAL: \$2,820,317
Prin. Invest. NASA Tech. Officer CASE Category
Hall, D. N. GSFC/Appler, R. A. 11-Astronomy
Bonsack, W. B. GSFC/Portas, S. B.
MacKnirk, L.

NASA'S UNIVERSITY PROGRAM

HAWAII (Continued)

NAS 5-30021	University of Hawaii - Manoa	2800
Definition study of an advanced scientific instrument for the Hubble space telescope		
<i>Period</i>	<i>Obligations</i>	
09/30/86-06/30/89	FY88: \$460,000	TOTAL: \$569,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hall, D. N.	GSFC/Sours, W. P.	41-Aero Engr
Capps, R. W.	GSFC/Shannon, J. L.	
NASW 3159	University of Hawaii - Manoa	2801
Provision of support during the preparatory stage for operation of the NASA infrared telescope facility		
<i>Period</i>	<i>Obligations</i>	
01/01/78-12/31/89	FY88: \$1,921,939	TOTAL: \$15,276,281
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hall, D. N.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Quaide, W. L.	
NASW 4018	University of Hawaii - Manoa	2802
Advanced terrestrial remote sensing		
<i>Period</i>	<i>Obligations</i>	
01/01/85-12/31/87	FY88:	TOTAL: \$211,925
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Singer, R. B.	HQ-EE/Murphy, R.	32-Geological Sci
Blake, P. L.	HQ-EE/Wickland, D.	
NASW 4141	University of Hawaii - Manoa	2803
Imaging spectrometer technology development		
<i>Period</i>	<i>Obligations</i>	
12/01/85-01/31/88	FY88:	TOTAL: \$200,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-EL/Quaide, W. L.	11-Astronomy
	HQ-EL/Bergstrah, J. T.	
NCA 2-75	University of Hawaii - Manoa	2804
Infrared studies of visual reflection nebulae		
<i>Period</i>	<i>Obligations</i>	
09/01/85-08/31/88	FY88:	TOTAL: \$9,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sellgren, K.	ARC/Werner, M. W.	11-Astronomy
NGF 12-001-103	University of Hawaii - Manoa	2805
Construction and furnishing of a permanent mid level facility (MLF) at Hale Pohaku in support of NASA's IRTF facility		
<i>Period</i>	<i>Obligations</i>	
10/01/82-06/30/88	FY88:	TOTAL: \$1,479,901
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jefferies, J. T.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	
NGL 12-001-011	University of Hawaii - Manoa	2806
Research in coronal and chromospheric physics		
<i>Period</i>	<i>Obligations</i>	
11/16/64-10/31/88	FY88: \$264,000	TOTAL: \$6,157,393
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Canifield, R.	HQ-EZ/Ahluwalia, H. S.	11-Astronomy
	HQ-EZ/Spicer, D. S.	
NGL 12-001-057	University of Hawaii - Manoa	2807
Research in planetary studies		
<i>Period</i>	<i>Obligations</i>	
05/21/68-12/31/88	FY88: \$930,725	TOTAL: \$9,436,252
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hall, D. N.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	
NGR 12-001-109	University of Hawaii - Manoa	2808
N-heterocyclic compounds role in chemical evolution distribution in meteorites ancient sediments and as products of spark discharge reactions		
<i>Period</i>	<i>Obligations</i>	
06/26/72-05/14/88	FY88:	TOTAL: \$694,741
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Folsome, C. E.	HQ-EB/Devincenzi, D. L.	51-Biological Sci
	HQ-EB/Averner, M.	
NGT 00-050-104	University of Hawaii - Manoa	2809
NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/88	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fanale, F. P.	HQ-LE/Owens, F. C.	32-Geological Sci
NGT 12-004-801	University of Hawaii - Manoa	2810
NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
07/01/85-06/30/88	FY88: \$18,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sinton, J. M.	HQ-LE/Owens, F. C.	32-Geological Sci
NSG 7312	University of Hawaii - Manoa	2811
Remote compositional mapping of the lunar surface		
<i>Period</i>	<i>Obligations</i>	
02/01/77-11/14/88	FY88: \$196,506	TOTAL: \$2,487,507
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	
NSG 7323	University of Hawaii - Manoa	2812
Research in planetary astronomy		
<i>Period</i>	<i>Obligations</i>	
02/01/77-02/28/89	FY88: \$130,000	TOTAL: \$1,358,672
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	
NSG 7536	University of Hawaii - Manoa	2813
Research in ultraviolet spectroscopy		
<i>Period</i>	<i>Obligations</i>	
11/01/78-01/31/89	FY88: \$125,000	TOTAL: \$1,193,176
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Labonte, B. J.	HQ-EZ/Ahluwalia, H. S.	13-Physics
	HQ-EZ/Spicer, D. S.	
NSG 7590	University of Hawaii - Manoa	2814
Mars surface unit definition characterization		
<i>Period</i>	<i>Obligations</i>	
03/01/79-06/30/87	FY88:	TOTAL: \$739,625
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Singer, R. B.	HQ-EL/Scott, D. H.	31-Atmos Sci
	HQ-EL/Holt, H. E.	

**NASA'S UNIVERSITY PROGRAM
IDAHO**

IDAHO

NAG 5-1043 University of Idaho 2815
Red time very large scale integrated circuit digital controller systems
Period Obligations
04/15/88-04/14/89 FY88: \$100,000 TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
Maki, G. K. GSFC/Miller, W. H. 49-Engr, NEC
GSFC/Florez, J. M.

NAGW 1406 University of Idaho 2816
University space engineering research center VLSI hardware acceleration center
Period Obligations
06/01/88-03/31/89 FY88: \$500,000 TOTAL: \$500,000
Prin. Invest. NASA Tech. Officer CASE Category
Maki, G. K. HQ-RS/Hartman, S. C. 49-Engr, NEC

NAS 5-26534 University of Idaho 2817
Design, development, fabrication and testing of a Reed-Solomon (RS) encoder/decoder unit
Period Obligations
04/28/81-09/30/88 FY88: \$40,000 TOTAL: \$987,886
Prin. Invest. NASA Tech. Officer CASE Category
Maki, G. K. GSFC/Miller, W. 45-Elec Engr

NCC 1-110 University of Idaho 2818
Electromagnetic dissociation effects in galactic heavy ion fragmentation
Period Obligations
10/01/86-07/15/87 FY88: TOTAL: \$4,227
Prin. Invest. NASA Tech. Officer CASE Category
Norbury, J. W. LARC/Townsend, L. W. 13-Physics
LARC/Conway, E. J.

ILLINOIS

NAS10-11425 Bradley University 2819
Analysis of compliance strategies for robotic applications at the Kennedy Space Center
Period Obligations
09/23/87-02/23/88 FY88: TOTAL: \$17,787
Prin. Invest. NASA Tech. Officer CASE Category
Podlasek, R. J. KSC/Davis, L. 99-Multi-Discip

NAG 9-313 Depaul University 2820
An image compression algorithm for a high resolution digital still camera
Period Obligations
09/15/88-08/31/89 FY88: \$9,027 TOTAL: \$9,027
Prin. Invest. NASA Tech. Officer CASE Category
Nerheim, R. JSC/Goldstein, S. H. 19-Phys Sci, NEC

NAG 1-871 Illinois Institute of Technology 2821
Supersonic combustion ramjet scram
Period Obligations
04/01/88-08/31/88 FY88: \$13,984 TOTAL: \$13,984
Prin. Invest. NASA Tech. Officer CASE Category
Acharya, M. LARC/Guy, R. W. 41-Aero Engr
LARC/Voland, R. T.

NAG 3-409 Illinois Institute of Technology 2822
Microstructural analysis of rapidly solidified superalloys
Period Obligations
08/01/83-12/30/87 FY88: \$409 TOTAL: \$88,281
Prin. Invest. NASA Tech. Officer CASE Category
Nash, P. G. LERC/Glasgow, T. K. 47-Materials Engr
Bloom, T.

NCC 3-101 Illinois Institute of Technology 2823
Rapidly solidified Cu Cr and Cu Zr alloys
Period Obligations
12/10/87-06/30/89 FY88: \$49,541 TOTAL: \$49,541
Prin. Invest. NASA Tech. Officer CASE Category
Nash, P. LERC/Gray, H. R. 47-Materials Engr

NAG 1-650 Northwestern University 2824
Parallel processors and nonlinear structural dynamics algorithms and software
Period Obligations
03/01/86-05/31/89 FY88: \$81,640 TOTAL: \$221,030
Prin. Invest. NASA Tech. Officer CASE Category
Belytschko, T. B. LARC/Housner, J. M. 46-Mech Engr
LARC/Stroud, W. J.

NAG 3-501 Northwestern University 2825
Electrical properties of materials for high temperature strain gage applications
Period Obligations
12/21/83-11/30/88 FY88: TOTAL: \$435,876
Prin. Invest. NASA Tech. Officer CASE Category
Brittain, J. O. LERC/Englund, D. R. 47-Materials Engr

NAG 3-535 Northwestern University 2826
Variational approach to probabilistic finite elements
Period Obligations
05/01/84-08/31/87 FY88: TOTAL: \$211,086
Prin. Invest. NASA Tech. Officer CASE Category
Belytschko, T. LERC/Chamis, C. C. 41-Aero Engr
Liu, E. K. LERC/Hopkins, D. A.

NAG 3-635 Northwestern University 2827
Develop theoretical and numerical models of microwave scattering of finite, electrically large, three-dimensional reentrant structures and ducts
Period Obligations
06/01/85-09/30/87 FY88: TOTAL: \$49,995
Prin. Invest. NASA Tech. Officer CASE Category
Taflove, A. LERC/Baumeister, K. J. 41-Aero Engr

NAG 3-747 Northwestern University 2828
Theory of solidification
Period Obligations
10/10/86-10/10/89 FY88: \$111,648 TOTAL: \$330,000
Prin. Invest. NASA Tech. Officer CASE Category
Davis, S. H. LERC/Chait, A. 47-Materials Engr

NAG 3-822 Northwestern University 2829
Probabilistic finite elements for fatigue and fracture analysis
Period Obligations
01/05/88-01/04/89 FY88: \$71,833 TOTAL: \$71,833
Prin. Invest. NASA Tech. Officer CASE Category
Belytschko, T. LERC/Chamis, C. C. 42-Astro Engr
Kiu, W. K. LERC/Hopkins, D. A.

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NAG 3-896	Northwestern University	2830			
Kinetics and mechanisms of perfluorethes reactions on iron and oxidized iron surfaces					
<i>Period</i>	<i>Obligations</i>				
06/01/88-05/31/89	FY88: \$60,286	TOTAL: \$60,286			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stair, P. C.	LERC/Jones, W. R.	12-Chemistry			
NCA 2-345	Northwestern University	2838			
Star formation in violently interacting galaxies					
<i>Period</i>	<i>Obligations</i>				
08/16/88-08/15/89	FY88: \$13,802	TOTAL: \$13,802			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bushouse, H. A.	ARC/Werner, M. W.	11-Astronomy			
	ARC/Smith, B. F.				
NAG 5-181	Northwestern University	2831			
Research relative to electroformed X-ray mirrors					
<i>Period</i>	<i>Obligations</i>				
05/15/81-03/31/89	FY88: \$110,000	TOTAL: \$450,337			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulmer, M. P.	GSFC/Early, L. J.	11-Astronomy			
	GSFC/Pless, R. H.				
NGT 00-050-012	Northwestern University	2839			
NASA graduate student researchers program					
<i>Period</i>	<i>Obligations</i>				
08/01/86-07/31/88	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Eirich, F.	HQ-EB/Rummel, J.	21-Mathematics			
NAG 2-452	Southern Illinois University - Carbondale	2840			
Characterization of neurospora circadian rhythms in space					
<i>Period</i>	<i>Obligations</i>				
02/01/87-01/31/89	FY88: \$55,000	TOTAL: \$106,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferraro, J. S.	ARC/Winget, C. M.	51-Biological Sci			
	ARC/Ballard, R. W.				
NAGW 707	Southern Illinois University - Carbondale	2841			
Groundwater sapping studies					
<i>Period</i>	<i>Obligations</i>				
02/01/85-01/31/89	FY88: \$10,000	TOTAL: \$59,332			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kochel, R. C.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAG 2-148	University of Chicago	2842			
Physiology of the vestibular system					
<i>Period</i>	<i>Obligations</i>				
12/01/81-11/30/88	FY88: \$49,599	TOTAL: \$375,099			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goldberg, J. M.	ARC/Daunton, N. G.	51-Biological Sci			
	ARC/Corcoran, M. L.				
NAG 2-237	University of Chicago	2843			
The fossil record of periodic extinction					
<i>Period</i>	<i>Obligations</i>				
05/01/83-11/14/88	FY88: \$37,170	TOTAL: \$194,170			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Raup, D. M.	ARC/Des Marais, D. J.	51-Biological Sci			
	Sepkoski, J. J.				
NAG 2-380	University of Chicago	2844			
Data reduction and analysis for the University of Chicago charged particle instrument on the Pioneer 10 and 11 spacecraft					
<i>Period</i>	<i>Obligations</i>				
10/01/85-10/31/88	FY88: \$367,276	TOTAL: \$1,125,026			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Simpson, J. A.	ARC/Fimmel, R. O.	13-Physics			
	ARC/Craig, R. A.				
NAGW 768	Northwestern University	2837			
Theoretical studies of high energy transients					
<i>Period</i>	<i>Obligations</i>				
07/15/85-01/31/89	FY88: \$68,850	TOTAL: \$257,788			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Taam, R. E.	HQ-EZ/Bunner, A. N.	13-Physics			
	HQ-EZ/Weiler, E. J.				
NAG 5-1008	Northwestern University	2834			
Synthesis of finite displacements and displacement rates in contennial margins					
<i>Period</i>	<i>Obligations</i>				
09/15/87-09/14/89	FY88: \$94,040	TOTAL: \$164,051			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Speed, R. C.	GSFC/Welker, J. E.	32-Geological Sci			
NAG 8-604	Northwestern University	2835			
Cluster interactions via morphological studies					
<i>Period</i>	<i>Obligations</i>				
06/23/86-03/22/89	FY88:	TOTAL: \$14,077			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulmer, M. P.	MSFC/Potter, P. Y.	11-Astronomy			
NAG 8-681	Northwestern University	2836			
A search for gamma ray emission from three pulsars using the HEAO 3 C 1 data base					
<i>Period</i>	<i>Obligations</i>				
08/01/87-07/31/89	FY88:	TOTAL: \$29,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulmer, M. P.	MSFC/Harper, B. A.	11-Astronomy			
NAG 5-255	University of Chicago	2845			
Observations of interstellar carbon					
<i>Period</i>	<i>Obligations</i>				
07/15/82-07/15/89	FY88: \$17,743	TOTAL: \$51,725			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hobbs, L.	GSFC/Kondo, Y.	11-Astronomy			
York, D. G.					
Welty, D. E.					

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NAG 9-296 University of Chicago 2862
Oxygen isotope study fluid + melt trans
Period *Obligations*
05/01/88-05/01/89 FY88: \$23,000 TOTAL: \$23,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wickham, S. JSC/Phinney, W. C. 32-Geological Sci

NAG 9-309 University of Chicago 2863
Dust particle calibration of instrumentation for dust particle velocity and trajectory determination
Period *Obligations*
09/01/88-06/01/89 FY88: \$25,460 TOTAL: \$25,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. JSC/Horz, F. 49-Engr, NEC

NAGW 762 University of Chicago 2864
Statistical analysis of stratospheric ozone and temperature data for trends
Period *Obligations*
07/01/85-09/30/88 FY88: \$45,000 TOTAL: \$155,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tiao, G. C. HQ-EE/Jackman, C. H. 31-Atmos Sci
HQ-EE/Butler, D. M.

NAGW 830 University of Chicago 2865
Fundamental studies in high energy astrophysics
Period *Obligations*
11/01/85-09/30/88 FY88: \$73,105 TOTAL: \$233,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lamb, D. Q., Jr. HQ-EZ/Kaluziński, L. J. 11-Astronomy
HQ-EZ/Bunner, A. N.

NAGW 873 University of Chicago 2866
Interaction of solar ultraviolet radiation (280-400 nm) with terrestrial system
Period *Obligations*
02/01/86-02/01/89 FY88: \$84,966 TOTAL: \$273,244
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frederick, J. E. HQ-EE/Miller, T. L. 31-Atmos Sci
HQ-EE/Prather, M. J.

NAGW 877 University of Chicago 2867
An accelerator test of a novel detector system for
Period *Obligations*
02/15/86-02/14/88 FY88: TOTAL: \$19,632
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wiedenbeck, M. E. HQ-EZ/Jones, W. V. 11-Astronomy
HQ-EZ/Kaluziński, L. J.

NAGW 878 University of Chicago 2868
Adaptation of alpha particle instrument for penetrator on a comet mission
Period *Obligations*
03/01/86-12/31/88 FY88: \$121,603 TOTAL: \$382,340
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turkevich, A. HQ-EL/Evans, L. G. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1000 University of Chicago 2869
The 13th Texas symposium on relativistic astrophysics
Period *Obligations*
10/01/86-09/30/87 FY88: TOTAL: \$22,627
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schramm, D. N. HQ-EZ/Kaluziński, L. J. 11-Astronomy
HQ-EZ/Bunner, A. N.

NAGW 1235 University of Chicago 2870
Theoretical program in plasma and MHD processes relevant to the solar outer atmosphere and its analogues
Period *Obligations*
01/01/88-12/31/88 FY88: \$170,748 TOTAL: \$170,748
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosner, R. HQ-EE/Butler, D. M. 11-Astronomy
HQ-EE/Curtis, S. A.

NAGW 1284 University of Chicago 2871
Theoretical studies in high energy transients
Period *Obligations*
02/01/88-01/31/89 FY88: \$51,150 TOTAL: \$51,150
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fryxell, B. A. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Jones, W. V.

NAGW 1311 University of Chicago 2872
Analyze interpretation of high energy cosmic rays measured a spacelab-2
Period *Obligations*
01/01/88-12/31/88 FY88: \$450,000 TOTAL: \$450,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muller, D. HQ-ES/Mellott, M. M. 13-Physics
Meyer, P. HQ-ES/Jones, W. V.

NAGW 1328 University of Chicago 2873
Cosmic ray measurements of the isotopic composition of matter in the galaxy
Period *Obligations*
03/01/88-02/29/89 FY88: \$300,000 TOTAL: \$300,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Jones, W. V.

NAS 1-18239 University of Chicago 2874
Halogen occultation experiment (HALOE) \$109,800
Period *Obligations*
02/20/86-02/19/93 FY88: \$34,000 TOTAL: \$59,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frederick, J. E. LARC/Sullivan, E. M. 31-Atmos Sci
LARC/Russell, J. M., III

NAS 1-18385 University of Chicago 2875
Earth radiation budget experiment
Period *Obligations*
09/30/86-09/30/90 FY88: \$94,000 TOTAL: \$363,145
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ramanathan, V. LARC/Barkstrom, B. R. 31-Atmos Sci

NAS 5-24430 University of Chicago 2876
Design, develop, fabricate and testing of a scientific instrument for an experiment to measure cosmic ray isotopes
Period *Obligations*
12/01/77-11/15/87 FY88: TOTAL: \$3,085,964
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. GSFC/Wares, R. 13-Physics

NAS 5-28500 University of Chicago 2877
Data reduction and analysis for ISEE/ICE spacecraft's cosmic ray electron experiment
Period *Obligations*
11/01/84-12/31/88 FY88: \$85,000 TOTAL: \$505,755
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. GSFC/Wales, R. O. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NAS 5-30117 **University of Chicago** **2878**
Support of the energetic heavy ion composition EHIC experiment and the cosmic ray isotope experiment CRIE
Period *Obligations*
11/16/87-09/30/91 **FY88: \$324,500** **TOTAL: \$324,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. GSFC/Wales, R. O. 11-Astronomy
Pyle, K. R.
Mundz, M. G.

NAS 8-32828 **University of Chicago** **2879**
Elemental composition and energy spectra of cosmic ray nuclei
Period *Obligations*
10/28/77-12/31/88 **FY88:** **TOTAL: \$13,328,762**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Myers, P. MSFC/Nunke, R. 31-Atmos Sci
Muller, D. MSFC/Ise, R.

NASW 3959 **University of Chicago** **2880**
Participation in Vega mission to measure dust particles from Halley's comet
Period *Obligations*
08/01/84-06/30/89 **FY88: \$85,506** **TOTAL: \$920,733**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. HQ-EL/Quaide, W. L. 19-Phys Sci, NEC

NASW 4196 **University of Chicago** **2881**
The definition and development of novel instrumentation for dust and solar system exploration
Period *Obligations*
01/01/87-12/30/88 **FY88: \$100,000** **TOTAL: \$200,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. HQ-EL/Gold, R. 31-Atmos Sci
HQ-EL/Evans, L.

NCC 2-265 **University of Chicago** **2882**
Numerical experimental on the dynamics of galaxies
Period *Obligations*
08/01/83-02/28/89 **FY88: \$17,087** **TOTAL: \$140,887**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, R. H. ARC/Smith, B. F. 11-Astronomy
ARC/Casson, P. M.

NGL 14-001-001 **University of Chicago** **2883**
Investigation of effects of solar wind in interplanetary space
Period *Obligations*
08/01/60-12/31/88 **FY88: \$145,574** **TOTAL: \$2,246,831**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, E. N. HQ-ES/Ahluwalia, H. S. 11-Astronomy
HQ-EZ/Bohlin, J. D.

NGL 14-001-005 **University of Chicago** **2884**
High altitude balloon investigations on composition, energy spectrum and intensity of primary cosmic radiation at high and intermediate geomagnetic latitudes
Period *Obligations*
05/01/61-11/30/88 **FY88: \$180,000** **TOTAL: \$9,065,626**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-EZ/Kaluzienski, L. J.

NGL 14-001-006 **University of Chicago** **2885**
Experimental and theoretical studies of energetic particles and electrodynamic processes in interplanetary space and in vicinity of planets
Period *Obligations*
08/01/61-02/28/89 **FY88: \$372,320** **TOTAL: \$10,173,416**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-ES/Jones, W. V.

NGL 14-001-258 **University of Chicago** **2886**
Advanced technical developments in support of scientific experiments in space
Period *Obligations*
06/15/73-03/31/89 **FY88: \$235,000** **TOTAL: \$3,577,501**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HQ-E/Alexander, J. K. 99-Multi-Discip
Muller, D. HQ-EP/Konkel, R. M.
Simpson, J. A.

NGR 14-001-008 **University of Chicago** **2887**
Meteorological interpretation of satellite radiation data
Period *Obligations*
09/01/70-10/31/88 **FY88: \$80,000** **TOTAL: \$2,349,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fujita, T. T. HQ-EE/Dodge, J. C. 31-Atmos Sci

NGR 14-001-147 **University of Chicago** **2888**
Interferometric high-resolution spectroscopy of optical interstellar lines
Period *Obligations*
03/18/70-06/30/89 **FY88:** **TOTAL: \$597,603**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hobbs, L. M. HQ-EZ/Weller, E. J. 11-Astronomy
HQ-EZ/Stachnik, R. V.

NGR 14-001-227 **University of Chicago** **2889**
Photometry of galactic and extragalactic far infrared sources using the 91.5 cm airborne infrared telescope
Period *Obligations*
02/27/73-12/31/88 **FY88: \$306,958** **TOTAL: \$2,306,624**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harper, D. A., Jr. ARC/Haughney, L. C. 11-Astronomy

NGT 00-050-015 **University of Chicago** **2890**
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 **FY88: \$18,000** **TOTAL: \$54,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anders, E. HQ-LE/Owens, F. C. 12-Chemistry

NGT 00-050-041 **University of Chicago** **2891**
NASA graduate student researchers program
Period *Obligations*
07/01/86-06/30/89 **FY88: \$36,000** **TOTAL: \$54,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clayton, R. N. HQ-LE/Owens, F. C. 12-Chemistry

NGT 00-050-059 **University of Chicago** **2892**
NASA graduate student researchers program
Period *Obligations*
09/01/86-08/31/89 **FY88: \$36,000** **TOTAL: \$54,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacAyeal, D. R. HQ-LE/Owens, F. C. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NGT 00-050-073	University of Chicago	2893	NASA graduate student researchers program <i>Period</i> 07/01/86-06/30/89 <i>Prin. Invest.</i> Hildebrand, R.	<i>Obligations</i> FY88: \$18,000 NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$54,000 CASE Category 11-Astronomy	NGT 14-020-801	University of Chicago	2902	NASA graduate student researchers program <i>Period</i> 04/15/85-06/23/88 <i>Prin. Invest.</i> Simpson, J. A.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$54,000 CASE Category 13-Physics
NGT 00-050-184	University of Chicago	2894	NASA graduate student researchers program <i>Period</i> 06/22/87-06/21/89 <i>Prin. Invest.</i> Ziegler, A. M.	<i>Obligations</i> FY88: \$36,000 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$36,000 CASE Category 19-Phys Sci, NEC	NGT 14-020-802	University of Chicago	2903	NASA graduate student researchers program <i>Period</i> 06/24/85-06/23/89 <i>Prin. Invest.</i> Wiedenbeck, M.	<i>Obligations</i> FY88: \$18,000 NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$72,000 CASE Category 13-Physics
NGT 00-050-189	University of Chicago	2895	NASA graduate student researchers program <i>Period</i> 06/01/87-06/12/89 <i>Prin. Invest.</i> Lamb, D. Q.	<i>Obligations</i> FY88: \$18,000 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$36,000 CASE Category 11-Astronomy	NGT 14-020-803	University of Chicago	2904	NASA graduate student researchers program <i>Period</i> 06/14/85-06/13/88 <i>Prin. Invest.</i> Raup, D. M.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$54,000 CASE Category 32-Geological Sci
NGT 00-050-199	University of Chicago	2896	NASA graduate student researchers program <i>Period</i> 06/22/87-06/21/89 <i>Prin. Invest.</i> Arbib, M.	<i>Obligations</i> FY88: \$36,000 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$36,000 CASE Category 13-Physics	NGT 14-020-804	University of Chicago	2905	NASA graduate student researchers program <i>Period</i> 06/24/85-06/24/87 <i>Prin. Invest.</i> Meyer, P.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$36,000 CASE Category 13-Physics
NGT 00-050-203	University of Chicago	2897	NASA graduate student researchers program <i>Period</i> 06/01/87-05/31/89 <i>Prin. Invest.</i> Clayton, R. N.	<i>Obligations</i> FY88: \$18,000 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$36,000 CASE Category 13-Physics	NGT 14-020-806	University of Chicago	2906	NASA graduate student researchers program <i>Period</i> 07/01/85-12/31/88 <i>Prin. Invest.</i> Clayton, R. N.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$45,000 CASE Category 12-Chemistry
NGT 00-050-209	University of Chicago	2898	NASA graduate student researchers program <i>Period</i> 06/01/87-06/30/88 <i>Prin. Invest.</i> Turner, M. S.	<i>Obligations</i> FY88: \$6,250 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$24,250 CASE Category 13-Physics	NSG 2057	University of Chicago	2907	Study of sensitive detection system for far infrared astronomy <i>Period</i> 12/01/74-01/31/89 <i>Prin. Invest.</i> Hildebrand, R. H.	<i>Obligations</i> FY88: \$169,000 NASA Tech. Officer ARC/Haughney, L. C.	TOTAL: \$1,099,811 CASE Category 11-Astronomy
NGT 00-050-272	University of Chicago	2899	NASA graduate student researchers program <i>Period</i> 06/01/88-07/31/89 <i>Prin. Invest.</i> Dwyer, J. R. Muller, D.	<i>Obligations</i> FY88: \$18,000 NASA Tech. Officer HQ-ES/Ahluwalia, H. S. HQ-ES/Jones, V.	TOTAL: \$18,000 CASE Category 71-Anthropology	NSG 7303	University of Chicago	2908	Applications of electron microscopy in molecular esobiology and extraterrestrial research <i>Period</i> 12/01/76-12/31/87 <i>Prin. Invest.</i> Fernandez, H.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EB/Soffen, G. A.	TOTAL: \$104,450 CASE Category 51-Biological Sci
NGT 00-050-348	University of Chicago	2900	NASA graduate student researchers program <i>Period</i> 06/01/88-07/31/89 <i>Prin. Invest.</i> Miller, R. H.	<i>Obligations</i> FY88: \$18,000 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$18,000 CASE Category 13-Physics	NSG 7464	University of Chicago	2909	Studies of the energy spectrum of cosmic ray electrons <i>Period</i> 07/01/78-10/31/88 <i>Prin. Invest.</i> Muller, D.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EZ/Jones, W. V.	TOTAL: \$899,067 CASE Category 31-Atmos Sci
NGT 14-020-800	University of Chicago	2901	NASA graduate student researchers program <i>Period</i> 04/01/84-03/31/88 <i>Prin. Invest.</i> Harper, D. A.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$58,000 CASE Category 11-Astronomy	NAG 2-282	University of Illinois - Chicago Circle	2910	The fossil record of evolution: Data on diversification and extinction <i>Period</i> 02/01/84-01/31/89 <i>Prin. Invest.</i> Sepkoski, J. J., Jr.	<i>Obligations</i> FY88: \$23,100 NASA Tech. Officer ARC/Des Marais, D. J.	TOTAL: \$119,100 CASE Category 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NAG 2-308 University of Illinois, Urbana 2927
Human performance and workload in automated systems
Period Obligations
08/01/84-09/30/88 FY88: \$132,861 TOTAL: \$531,331
Prin. Invest. NASA Tech. Officer CASE Category
Wickens, C. D. ARC/Hart, S. G. 69-Psych, NEC
Anderson, J.

NAG 2-369 University of Illinois, Urbana 2928
Event related brain potential indices of cognitive workload and automaticity
Period Obligations
08/01/85-12/31/88 FY88: TOTAL: \$60,072
Prin. Invest. NASA Tech. Officer CASE Category
Kramer, A. F. ARC/Hart, S. 69-Psych, NEC

NAG 2-466 University of Illinois, Urbana 2929
The assessment and prediction of mental workload a comparison of physiological behavioral and subjective metrics
Period Obligations
08/01/87-07/31/88 FY88: \$46,452 TOTAL: \$91,452
Prin. Invest. NASA Tech. Officer CASE Category
Donchin, E. ARC/Hart, S. G. 69-Psych, NEC
Kramer, A.
Coles, M.

NAG 3-418 University of Illinois, Urbana 2930
Study of microstrip antenna arrays and related problems
Period Obligations
05/21/83-12/31/87 FY88: TOTAL: \$220,165
Prin. Invest. NASA Tech. Officer CASE Category
Lo, Y. T. LERC/Lee, R. Q. 45-Elec Engr

NAG 3-419 University of Illinois, Urbana 2931
Selected studies of reflector antenna systems
Period Obligations
05/21/83-01/17/89 FY88: \$60,487 TOTAL: \$298,093
Prin. Invest. NASA Tech. Officer CASE Category
Lee, S. W. LERC/Acosta, R. J. 45-Elec Engr

NAG 3-465 University of Illinois, Urbana 2932
Multiaxial cyclic deformation and fatigue
Period Obligations
08/20/83-06/17/87 FY88: TOTAL: \$216,817
Prin. Invest. NASA Tech. Officer CASE Category
Socie, D. F. LERC/McGaw, M. A. 47-Materials Engr
LERC/Freed, A. D.

NAG 3-475 University of Illinois, Urbana 2933
Numerical methods for analyzing electromagnetic scattering
Period Obligations
07/13/87-01/04/89 FY88: \$75,000 TOTAL: \$350,325
Prin. Invest. NASA Tech. Officer CASE Category
Lee, S. W. LERC/Rice, E. J. 45-Elec Engr
Lo, Y. T.
Chuang, S. L.

NAG 3-507 University of Illinois, Urbana 2934
Superlattices and nipi structures in new forms of cascade solar cells
Period Obligations
01/20/84-10/31/87 FY88: TOTAL: \$218,886
Prin. Invest. NASA Tech. Officer CASE Category
Leburton, J. P. LERC/Godlewski, M. P. 45-Elec Engr
Hess, K. LERC/Flood, D.
Holonyak, N.

NAG 3-591 University of Illinois, Urbana 2935
Investigation of polycrystalline vanadium oxide films deposited by magnetron reactive sputtering and their application to thermal control surface for space power systems
Period Obligations
12/10/84-09/30/88 FY88: TOTAL: \$157,154
Prin. Invest. NASA Tech. Officer CASE Category
Thornton, J. LERC/Mirtich, M. J. 13-Physics
LERC/Banks, B. A.

NAG 3-613 University of Illinois, Urbana 2936
Electron transport in new material quantum well structures for microwave devices
Period Obligations
04/30/85-01/14/89 FY88: \$60,000 TOTAL: \$294,524
Prin. Invest. NASA Tech. Officer CASE Category
Morkoc, H. LERC/Alterovitz, S. A. 45-Elec Engr

NAG 3-741 University of Illinois, Urbana 2937
Gas discharge particle simulations for modeling surface flash over on spacecraft
Period Obligations
09/01/86-08/15/89 FY88: \$75,000 TOTAL: \$214,549
Prin. Invest. NASA Tech. Officer CASE Category
Kushner, M. J. LERC/Purvis, C. K. 13-Physics

NAG 3-798 University of Illinois, Urbana 2938
Nondestructing evaluation characterization of advanced ceramic matrix composites
Period Obligations
06/01/87-01/30/89 FY88: \$21,205 TOTAL: \$39,941
Prin. Invest. NASA Tech. Officer CASE Category
Dos Reis, H. L. LERC/Klima, S. J. 47-Materials Engr

NAG 3-805 University of Illinois, Urbana 2939
Optional low thrust time constrained orbital rendezvous
Period Obligations
08/27/87-08/28/89 FY88: \$97,009 TOTAL: \$156,943
Prin. Invest. NASA Tech. Officer CASE Category
Conway, B. A. LERC/Mulac, M. W. 42-Astro Engr
Prussing, J. E. LERC/Spurlock, O. F.

NAG 5-377 University of Illinois, Urbana 2940
Design of high performance reconfigurable systems
Period Obligations
10/15/83-08/31/87 FY88: TOTAL: \$158,544
Prin. Invest. NASA Tech. Officer CASE Category
Reed, D. GSFC/Dorband, J. 22-Computer Science

NAG 5-800 University of Illinois, Urbana 2941
Research relative to southern planetary nebular
Period Obligations
07/01/86-06/30/87 FY88: TOTAL: \$10,991
Prin. Invest. NASA Tech. Officer CASE Category
Kaler, J. B. GSFC/Kondo, Y. 11-Astronomy
Feibelman, W. B.
Shaw, R. A.

NAG 5-1064 University of Illinois, Urbana 2942
Winds from planetary nebula nuclei
Period Obligations
07/15/88-07/14/89 FY88: \$12,074 TOTAL: \$12,074
Prin. Invest. NASA Tech. Officer CASE Category
Kaler, J. GSFC/Kondo, Y. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NAG 8-59	University of Illinois, Urbana	2943			
Application of satellite data in variational analysis for global cyclonic system					
<i>Period</i>		<i>Obligations</i>			
03/25/86-03/25/89		FY88: \$171,691	TOTAL: \$497,450		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Actemeir, G. L.		MSFC/Kaufman, J. W.	31-Atmos Sci		
		MSFC/Smith, G. T.			
NAG 8-540	University of Illinois, Urbana	2944			
Evaluate the X-ray and radio emission mechanisms in the young remnants of Tycho's and Kepler's supernova					
<i>Period</i>		<i>Obligations</i>			
08/01/85-08/01/87		FY88:	TOTAL: \$7,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Dickel, J. R.		MSFC/Harper, B.	11-Astronomy		
NAG 9-137	University of Illinois, Urbana	2945			
Qualitative models for space system engineering					
<i>Period</i>		<i>Obligations</i>			
05/21/86-05/21/89		FY88: \$75,000	TOTAL: \$197,931		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Forbus, K. D.		JSC/Malin, J. T.	42-Astro Engr		
NAGW 992	University of Illinois, Urbana	2946			
Continued research spacelab 1 TSO data					
<i>Period</i>		<i>Obligations</i>			
11/01/86-04/30/89		FY88: \$49,242	TOTAL: \$100,977		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Bowman, K. P.		HQ-EE/Jackman, C. H.	31-Atmos Sci		
		HQ-EE/Butler, D. M.			
NAGW 1104	University of Illinois, Urbana	2947			
Microphysical theory of diffuse astronomical environments					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/89		FY88: \$50,000	TOTAL: \$100,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Watson, W. D.		HQ-EZ/Gillett, F. C.	11-Astronomy		
		HQ-EZ/Stachnik, R. V.			
NAGW 1131	University of Illinois, Urbana	2948			
Radio astronomical studies of comets with the very large array					
<i>Period</i>		<i>Obligations</i>			
07/01/87-12/31/88		FY88: \$30,026	TOTAL: \$81,693		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Snyder, L. E.		HQ-EL/Brinton, H. C.	11-Astronomy		
		HQ-EL/Rahe, J. H.			
NAGW 1389	University of Illinois, Urbana	2949			
Multiyear sea ice concentration model and satellite derived					
<i>Period</i>		<i>Obligations</i>			
07/01/88-06/30/89		FY88: \$45,473	TOTAL: \$45,473		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Walsh, J. E.		HQ-EE/Thomas, R. H.	33-Oceanography		
		HQ-EE/Wilson, W. S.			
NAS 5-28781	University of Illinois, Urbana	2950			
Interpreting forest and grassland biome productivity utilizing nested scales of image resolution and biogeographical analysis					
<i>Period</i>		<i>Obligations</i>			
08/09/85-04/09/88		FY88:	TOTAL: \$199,994		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Iverson, L.		GSFC/Oseroff, H.	32-Geological Sci		
NAS10-11153	University of Illinois, Urbana	2951			
Study of liquid vapor					
<i>Period</i>		<i>Obligations</i>			
02/05/85-08/24/89		FY88: \$124,198	TOTAL: \$427,493		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Chao, B. T.		KSC/Lin, F. N.	39-Env Sci, NEC		
		Soo, S. L.			
NCA 2-92	University of Illinois, Urbana	2952			
An alternative formulation for Euler solutions by improving convection fidelity					
<i>Period</i>		<i>Obligations</i>			
10/01/85-06/30/88		FY88:	TOTAL: \$80,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Lee, K. D.		ARC/Erickson, L. L.	41-Aero Engr		
NCA 2-131	University of Illinois, Urbana	2953			
Analysis of structure in turbulent flow					
<i>Period</i>		<i>Obligations</i>			
08/15/86-08/14/87		FY88:	TOTAL: \$20,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Adrian, R. J.		ARC/Moin, P.	41-Aero Engr		
NCA 2-165	University of Illinois, Urbana	2954			
The infrared emission properties of pairs of interacting galaxies					
<i>Period</i>		<i>Obligations</i>			
09/15/86-09/14/88		FY88:	TOTAL: \$37,619		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Lamb, S. A.		ARC/Werner, M. W.	11-Astronomy		
		ARC/Smith, B. F.			
NCA 2-184	University of Illinois, Urbana	2955			
Measurement based error analysis of a networked system					
<i>Period</i>		<i>Obligations</i>			
12/01/86-05/01/88		FY88:	TOTAL: \$40,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Iyer, R. K.		ARC/Schulbach, C. H.	22-Computer Science		
NCA 2-301	University of Illinois, Urbana	2956			
A proposal for an integrated data analysis and model extraction facility					
<i>Period</i>		<i>Obligations</i>			
05/01/88-12/31/88		FY88: \$40,000	TOTAL: \$40,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Iyer, R. K.		ARC/Grant, T. L.	22-Computer Science		
NCC 2-380	University of Illinois, Urbana	2957			
Workload and training: An examination of their interactions					
<i>Period</i>		<i>Obligations</i>			
10/01/85-03/31/89		FY88:	TOTAL: \$109,991		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Donchin, E.		ARC/Hart, S. G.	69-Psych, NEC		
		ARC/Hartzell, E. J.			
NCC 2-481	University of Illinois, Urbana	2958			
Efficient evaluation of AI programs					
<i>Period</i>		<i>Obligations</i>			
01/01/87-12/31/88		FY88: \$109,409	TOTAL: \$180,535		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Wah, B. W.		ARC/Lum, H.	22-Computer Science		
		ARC/McKellar, D.			

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NCC 2-559 University of Illinois, Urbana 2959
Architecture and compiler design and evaluation facilities
Period Obligations
08/01/88-01/31/89 FY88: \$150,000 TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Kuck, D. J. ARC/Lum, H. 22-Computer Science
Lawrie, D. ARC/McKellar, D.
Sameh, A.

NGR 14-005-181 University of Illinois, Urbana 2960
Rocket studies of the lower ionosphere
Period Obligations
08/01/71-12/31/88 FY88: \$100,000 TOTAL: \$6,325,062
Prin. Invest. NASA Tech. Officer CASE Category
Bowhill, S. A. GSFC/Early, L. J. 19-Phys Sci, NEC
GSFC/Pless, R. H.

NGT 00-050-152 University of Illinois, Urbana 2961
NASA graduate student researchers program
Period Obligations
06/01/87-01/31/89 FY88: \$14,000 TOTAL: \$32,000
Prin. Invest. NASA Tech. Officer CASE Category
Dickel, J. R. HQ-XE/Owens, F. C. 11-Astronomy

NGT 00-050-349 University of Illinois, Urbana 2962
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Wah, B. HQ-XE/Owens, F. C. 22-Computer Science

NGT 00-050-356 University of Illinois, Urbana 2963
NASA graduate student researchers program
Period Obligations
09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Bentsman, J. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-363 University of Illinois, Urbana 2964
NASA graduate student researchers program
Period Obligations
08/21/88-08/20/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Beddini, R. A. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 00-050-384 University of Illinois, Urbana 2965
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Dutton, J. C. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-070-038 University of Illinois, Urbana 2966
Graduate student researchers underrepresented minority focus program
Period Obligations
08/24/87-08/23/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Lee, S. W. HQ-XE/Owens, F. C. 45-Elec Engr

NGT 00-070-041 University of Illinois, Urbana 2967
Graduate student researchers underrepresented minority focus program
Period Obligations
08/21/87-08/20/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Lamb, S. A. HQ-XE/Owens, F. C. 13-Physics

NGT 00-070-042 University of Illinois, Urbana 2968
Graduate student researchers underrepresented minority focus program
Period Obligations
09/01/87-11/30/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Lo, Y. T. HQ-XE/Owens, F. C. 45-Elec Engr

NSG 1471 University of Illinois, Urbana 2969
A project to investigate mechanisms and methodologies for the design and construction of reliable, distributed programs in real-time environments
Period Obligations
11/15/77-11/30/88 FY88: \$50,000 TOTAL: \$740,843
Prin. Invest. NASA Tech. Officer CASE Category
Campbell, R. H. LARC/Murray, N. D. 21-Mathematics
LARC/Will, R. W.

NSG 5049 University of Illinois, Urbana 2970
Effects of atmospheric refraction and turbulence on the accuracy of laser systems
Period Obligations
02/01/75-01/31/89 FY88: \$49,475 TOTAL: \$606,999
Prin. Invest. NASA Tech. Officer CASE Category
Gardner, C. S. GSFC/Abshire, J. B. 45-Elec Engr
Swenson, G. W. GSFC/Zimmerman, R. T.

NSG 7044 University of Illinois, Urbana 2971
Evolution of the cell and the translation process
Period Obligations
06/01/74-12/31/88 FY88: \$106,000 TOTAL: \$1,142,730
Prin. Invest. NASA Tech. Officer CASE Category
Woese, C. R. HQ-EB/Fogleman, S. W. 12-Chemistry
HQ-EB/Rummel, J. D.

NSG 7653 University of Illinois, Urbana 2972
Fundamental studies in theoretical X-ray astronomy
Period Obligations
09/01/79-10/31/88 FY88: \$60,100 TOTAL: \$965,100
Prin. Invest. NASA Tech. Officer CASE Category
Lamb, F. K. HQ-EZ/Kaluzienski, L. 11-Astronomy
Pethick, C. J. HQ-EZ/Bunner, A. N.
Pines, D.

INDIANA

NAG 8-722 De Pauw University 2973
Advanced schlieren analysis project
Period Obligations
06/01/88-10/31/89 FY88: \$44,000 TOTAL: \$44,000
Prin. Invest. NASA Tech. Officer CASE Category
Brooks, H. L. MSFC/Denton, T. L. 13-Physics
MSFC/McIntosh, D. R.

NAG 2-498 Indiana State University 2974
Basic gravitational reflexes in the larval frog
Period Obligations
03/01/88-02/28/89 FY88: \$47,520 TOTAL: \$47,520
Prin. Invest. NASA Tech. Officer CASE Category
Cochran, S. L. ARC/Ross, M. D. 51-Biological Sci
ARC/Holton, E.

**NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)**

NAG 2-323 Indiana University - Bloomington 2975
Gravity perturbations as a probe for analyzing pattern specification in early amphibian embryogenesis
Period Obligations
12/01/84-11/30/88 FY88: \$56,140 TOTAL: \$219,140
Prin. Invest. NASA Tech. Officer CASE Category
Malacinski, G. M. ARC/Souza, K. A. 51-Biological Sci
ARC/Ross, M.

NAG 2-512 Indiana University - Bloomington 2976
Ballistic transport in ring systems due to meteoroid erosion
Period Obligations
06/01/88-05/31/89 FY88: \$11,800 TOTAL: \$11,800
Prin. Invest. NASA Tech. Officer CASE Category
Durisen, R. H. ARC/Cuzzi, J. N. 11-Astronomy

NAG 5-182 Indiana University - Bloomington 2977
Studies of the ultraviolet spectra of carbon stars
Period Obligations
05/15/81-08/31/89 FY88: \$14,500 TOTAL: \$164,119
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, H. R. GSFC/Kondo, Y. 11-Astronomy
Eaton, J. A.
Avrett, E. H.

NAG 5-198 Indiana University - Bloomington 2978
Quasi-simultaneous synoptic observations of selected objects in several wave-length regions
Period Obligations
08/01/81-10/31/87 FY88: TOTAL: \$20,443
Prin. Invest. NASA Tech. Officer CASE Category
Mufson, S. L. GSFC/Kondo, Y. 11-Astronomy
Urry, C. M.

NAG 5-599 Indiana University - Bloomington 2979
Ultraviolet observations of astronomical sources
Period Obligations
09/01/85-08/31/89 FY88: \$76,300 TOTAL: \$167,800
Prin. Invest. NASA Tech. Officer CASE Category
Eaton, J. GSFC/Kondo, Y. 11-Astronomy
Johnson, H. R.

NAG 5-721 Indiana University - Bloomington 2980
Charged particle radiation damage of germanium detectors
Period Obligations
12/01/85-11/30/88 FY88: TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Friesel, D. GSFC/Trombka, J. L. 19-Phys Sci, NEC
Pehl, R.

NAG 5-962 Indiana University - Bloomington 2981
/UE/IRAS studies of collapsed-core globular clusters
Period Obligations
07/14/87-07/13/88 FY88: TOTAL: \$10,003
Prin. Invest. NASA Tech. Officer CASE Category
Lugger, P. GSFC/Kondo, Y. 11-Astronomy

NAG 8-589 Indiana University - Bloomington 2982
A search for multiple X ray sources in the cores of high X ray luminosity globular clusters
Period Obligations
06/01/86-05/31/88 FY88: TOTAL: \$24,586
Prin. Invest. NASA Tech. Officer CASE Category
Cohn, H. N. MSFC/Potter, P. 11-Astronomy
Lugger, P. M.

NAGW 1035 Indiana University - Bloomington 2983
Superconducting magnet instrument for light isotopes
Period Obligations
02/15/87-11/30/88 FY88: \$65,000 TOTAL: \$125,000
Prin. Invest. NASA Tech. Officer CASE Category
Heinz, R. M. HQ-ES/Mellott, M. M. 13-Physics

NGR 15-003-118 Indiana University - Bloomington 2984
Application of ultra-high sensitivity isotope ratio mass spectrometry to organic geochemistry and cosmochemistry
Period Obligations
06/20/72-11/30/88 FY88: \$120,000 TOTAL: \$1,448,312
Prin. Invest. NASA Tech. Officer CASE Category
Hayes, J. M. HQ-EB/Rummel, J. 12-Chemistry
HQ-EB/Rambler, M. B.

NGT 00-050-237 Indiana University - Bloomington 2985
NASA graduate student researchers program
Period Obligations
09/01/87-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Hayes, J. M. HQ-XE/Owens, F. C. 12-Chemistry
HQ-EE/Watson, R. T.

NGT 00-050-298 Indiana University - Bloomington 2986
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$15,340 TOTAL: \$15,340
Prin. Invest. NASA Tech. Officer CASE Category
Heinz, R. M. HQ-XE/Owens, F. C. 13-Physics

NSG 9077 Indiana University - Bloomington 2987
Characterization and evolution of Apollo 15 drill core soils, and the origin of green glass vitrophyres
Period Obligations
07/15/79-03/01/89 FY88: \$25,081 TOTAL: \$242,133
Prin. Invest. NASA Tech. Officer CASE Category
Basu, A. JSC/Browne, I. D. 32-Geological Sci

NAG 1-58 Purdue University 2988
A study of method to predict and measure the transmission of sound through the walls of light aircraft
Period Obligations
04/01/80-04/30/89 FY88: \$80,628 TOTAL: \$741,977
Prin. Invest. NASA Tech. Officer CASE Category
Bernhard, R. J. LARC/Silcox, R. J. 41-Aero Engr
LARC/Powell, C. A.

NAG 1-157 Purdue University 2989
Interactive aircraft flight control and aeroelastic stabilization
Period Obligations
05/01/81-12/31/88 FY88: \$55,694 TOTAL: \$387,874
Prin. Invest. NASA Tech. Officer CASE Category
Weisshaar, T. A. LARC/Perry, B. 41-Aero Engr
Schmidt, D. K.

NAG 1-372 Purdue University 2990
Computational unsteady aerodynamics and aeroelasticity
Period Obligations
06/07/83-02/28/90 FY88: \$66,000 TOTAL: \$381,611
Prin. Invest. NASA Tech. Officer CASE Category
Yang, H. T. LARC/Edwards, J. W. 41-Aero Engr
Williams, M. LARC/Bennett, R. M.
Weisshaar, T. A.

**NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)**

NAG 1-468 **Purdue University** **2991**
Reduced controllers for the spacecraft control laboratory experiment
SCole
Period *Obligations*
06/01/84-05/31/87 FY88: TOTAL: \$95,137
Prin. Invest. NASA Tech. Officer CASE Category
Skelton, R. E. LARC/Williams, J. P. 42-Astro Engr
LARC/Montgomery, R. C.

NAG 1-857 **Purdue University** **2999**
Sensitivity optimal scaling and minimum roundoff errors in flexible structure
models
Period *Obligations*
03/01/88-02/28/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Skelton, R. E. LARC/Williams, J. P. 41-Aero Engr
LARC/Montgomery, R. C.

NAG 1-552 **Purdue University** **2992**
First international satellite cloud climatology project regional experiment
(FIRE) related study
Period *Obligations*
12/14/84-10/31/88 FY88: TOTAL: \$95,000
Prin. Invest. NASA Tech. Officer CASE Category
Smith, P. J. LARC/Owens, T. L. 31-Atmos Sci

NAG 2-468 **Purdue University** **3000**
State detailed dynamics of energetic half collisions terminating in
electronically excited diatomics of nitrogen and oxygen
Period *Obligations*
04/15/87-04/14/89 FY88: \$49,261 TOTAL: \$49,261
Prin. Invest. NASA Tech. Officer CASE Category
Grant, E. R. ARC/Jaffe, R. L. 13-Physics

NAG 1-581 **Purdue University** **2993**
Structural analysis using a multiprocessor computer
Period *Obligations*
04/01/85-11/30/87 FY88: TOTAL: \$198,060
Prin. Invest. NASA Tech. Officer CASE Category
Sun, C. T. LARC/Stroud, W. J. 49-Engr, NEC
Mehrotra, P. LARC/Storaasli, O. O.

NAG 3-351 **Purdue University** **3001**
Saturated laser fluorescence in turbulent sooting flames at high
pressure
Period *Obligations*
10/30/82-03/31/89 FY88: TOTAL: \$239,299
Prin. Invest. NASA Tech. Officer CASE Category
Laurendeau, N. M. LERC/Lyons, V. J. 46-Mech Engr
King, G. B.

NAG 1-642 **Purdue University** **2994**
An integrated approach to structural dynamics and structural control
Period *Obligations*
06/01/86-05/31/87 FY88: TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Skelton, R. E. LARC/Adelman, H. M. 41-Aero Engr

NAG 3-360 **Purdue University** **3002**
The role of hydroxyl radical in the chemistry of soot formation
Period *Obligations*
12/15/82-03/31/89 FY88: TOTAL: \$219,249
Prin. Invest. NASA Tech. Officer CASE Category
Laurendeau, N. M. LERC/Lezberg, E. 12-Chemistry
King, G. B. LERC/Haggard, J.

NAG 1-676 **Purdue University** **2995**
Design of an adaptable distributed system
Period *Obligations*
05/01/86-08/31/89 FY88: \$115,600 TOTAL: \$352,489
Prin. Invest. NASA Tech. Officer CASE Category
Bhargava, B. LARC/Murray, N. D. 22-Computer Science

NAG 3-481 **Purdue University** **3003**
Dynamic performance of high bypass ratio turbine engines with water
ingestion
Period *Obligations*
10/31/83-02/28/89 FY88: \$26,587 TOTAL: \$259,703
Prin. Invest. NASA Tech. Officer CASE Category
Murthy, S. N. LERC/Steinke, R. J. 41-Aero Engr

NAG 1-758 **Purdue University** **2996**
Dynamic modeling of flexible aerospace vehicles
Period *Obligations*
05/01/87-10/31/88 FY88: \$59,995 TOTAL: \$120,775
Prin. Invest. NASA Tech. Officer CASE Category
Schmidt, D. K. LARC/Arbuckle, P. D. 41-Aero Engr
LARC/Elliott, J. R.

NAG 3-496 **Purdue University** **3004**
Study of electron emission and arc discharges
Period *Obligations*
12/01/83-02/04/88 FY88: TOTAL: \$128,500
Prin. Invest. NASA Tech. Officer CASE Category
Reifenberger, R. LERC/Curran, F. 13-Physics
LERC/Nakanishi, S.

NAG 1-825 **Purdue University** **2997**
Characterization of viscoplastic behavior of graphite peek APC II
composites
Period *Obligations*
11/01/87-10/31/88 FY88: \$70,000 TOTAL: \$70,000
Prin. Invest. NASA Tech. Officer CASE Category
Sun, C. T. LARC/Bigelow, C. A. 46-Mech Engr
LARC/Whitcomb, J. D.

NAG 3-499 **Purdue University** **3005**
Aeroelasticity of advanced turboprops using three dimensional unsteady
aerodynamics
Period *Obligations*
12/15/83-04/28/89 FY88: \$89,639 TOTAL: \$301,674
Prin. Invest. NASA Tech. Officer CASE Category
Williams, M. H. LERC/Kaza, K. V. 41-Aero Engr
LERC/Brown, G. V.

NAG 1-854 **Purdue University** **2998**
Hypervelocity scramjet nozzle analysis and design
Period *Obligations*
02/15/88-12/14/88 FY88: \$127,500 TOTAL: \$127,500
Prin. Invest. NASA Tech. Officer CASE Category
Thompson, H. D. LARC/Weidner, J. P. 46-Mech Engr
Hoffman, J. D. LARC/Northam, G. B.

NAG 3-552 **Purdue University** **3006**
Influence of fuel thermal stability on atomizer design and performance
Period *Obligations*
09/15/84-02/28/89 FY88: \$59,994 TOTAL: \$256,606
Prin. Invest. NASA Tech. Officer CASE Category
Lefebvre, A. F. LERC/Rollbuhler, R. J. 46-Mech Engr
LERC/Niedzwiecki, R. W.

**NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)**

<p>NAG 3-592 Modelling of turbulent transport and production in a reacting mixing layer <i>Period</i> 01/02/85-02/28/88 <i>Prin. Invest.</i> Murthy, S. N.</p>	<p>Purdue University <i>Obligations</i> FY88: \$73,960 NASA Tech. Officer LERC/Overbeke, T. V.</p>	<p>3007 TOTAL: \$73,960 CASE Category 41-Aero Engr</p>	<p>NAG 5-101 Study the effect of cloud inhomogeneity on the Earth radiation budget <i>Period</i> 09/01/80-08/31/88 <i>Prin. Invest.</i> Smith, P. G.</p>	<p>Purdue University <i>Obligations</i> FY88: \$244,000 NASA Tech. Officer GSFC/Curran, R. J. GSFC/King, M. D.</p>	<p>3015 TOTAL: \$244,000 CASE Category 31-Atmos Sci</p>
<p>NAG 3-599 A predictive model for failure properties of thermoset resins <i>Period</i> 01/05/85-02/02/89 <i>Prin. Invest.</i> Caruthers, J. M.</p>	<p>Purdue University <i>Obligations</i> FY88: \$45,000 NASA Tech. Officer LERC/Bowles, K. A.</p>	<p>3008 TOTAL: \$180,575 CASE Category 47-Materials Engr</p>	<p>NAG 5-1088 Parameterization cloudiness climate models analysis radiation <i>Period</i> 10/01/88-06/30/89 <i>Prin. Invest.</i> Harshvardhan</p>	<p>Purdue University <i>Obligations</i> FY88: \$30,831 NASA Tech. Officer GSFC/Thiele, O. W.</p>	<p>3016 TOTAL: \$30,831 CASE Category 31-Atmos Sci</p>
<p>NAG 3-656 3-D unsteady aerodynamics and aeroelasticity of advanced turboprops <i>Period</i> 11/01/85-10/28/88 <i>Prin. Invest.</i> Fleeter, P. S.</p>	<p>Purdue University <i>Obligations</i> FY88: \$85,909 NASA Tech. Officer LERC/Hoyniak, D.</p>	<p>3009 TOTAL: \$242,336 CASE Category 41-Aero Engr</p>	<p>NAG 9-48 Chemical studies of meteorites <i>Period</i> 03/01/83-03/01/89 <i>Prin. Invest.</i> Lipschutz, M. E.</p>	<p>Purdue University <i>Obligations</i> FY88: \$55,000 NASA Tech. Officer JSC/Browne, I. D.</p>	<p>3017 TOTAL: \$291,700 CASE Category 12-Chemistry</p>
<p>NAG 3-825 Compendium of the aeromechanics of gas turbine engines <i>Period</i> 10/20/87-10/19/88 <i>Prin. Invest.</i> Fleeter, S.</p>	<p>Purdue University <i>Obligations</i> FY88: \$76,619 NASA Tech. Officer LERC/Newman, F. A.</p>	<p>3010 TOTAL: \$76,619 CASE Category 41-Aero Engr</p>	<p>NAGW 736 Improving the geological interpretations of magnetic and gravity satellite anomalies <i>Period</i> 04/01/85-05/31/88 <i>Prin. Invest.</i> Hinze, W. J.</p>	<p>Purdue University <i>Obligations</i> FY88: \$117,504 NASA Tech. Officer HQ-EE/Baltuck, M. HQ-EE/Murphy, R. E.</p>	<p>3018 TOTAL: \$117,504 CASE Category 32-Geological Sci</p>
<p>NAG 3-848 Modeling and simulation of an advanced solar dynamic photovoltaic spacecraft power system <i>Period</i> 12/05/87-08/05/88 <i>Prin. Invest.</i> Wasynczuk, O.</p>	<p>Purdue University <i>Obligations</i> FY88: \$46,917 NASA Tech. Officer LERC/Truong, L. V. LERC/Sundberg, G. R.</p>	<p>3011 TOTAL: \$46,917 CASE Category 45-Elec Engr</p>	<p>NAGW 799 Characterization of vegetation by microwave and optical remote sensing <i>Period</i> 08/01/85-07/31/89 <i>Prin. Invest.</i> Daughtry, C. S.</p>	<p>Purdue University <i>Obligations</i> FY88: \$222,161 NASA Tech. Officer HQ-EE/Tuyahov, A. J.</p>	<p>3019 TOTAL: \$222,161 CASE Category 39-Env Sci, NEC</p>
<p>NAG 3-858 Solution of flows through multistage turbomachinery using parallel processing techniques <i>Period</i> 01/05/88-01/04/89 <i>Prin. Invest.</i> Ecer, A. Akay, H. U.</p>	<p>Purdue University <i>Obligations</i> FY88: \$37,438 NASA Tech. Officer LERC/Blech, R. A. LERC/Szuch, J. R.</p>	<p>3012 TOTAL: \$37,438 CASE Category 49-Engr, NEC</p>	<p>NAGW 925 Earth observation research using multistage EOS like data <i>Period</i> 08/01/86-07/31/89 <i>Prin. Invest.</i> Johannsen, C. J. Landgrebe, D. A.</p>	<p>Purdue University <i>Obligations</i> FY88: \$279,928 NASA Tech. Officer HQ-EE/Tuyahov, A. J.</p>	<p>3020 TOTAL: \$539,237 CASE Category 39-Env Sci, NEC</p>
<p>NAG 3-875 Multi grid acceleration method for the solution of the average passage equations <i>Period</i> 02/20/88-02/19/89 <i>Prin. Invest.</i> Usab, W. J.</p>	<p>Purdue University <i>Obligations</i> FY88: \$38,142 NASA Tech. Officer LERC/Adamczyk, J. J.</p>	<p>3013 TOTAL: \$38,142 CASE Category 41-Aero Engr</p>	<p>NAGW 1056 Telescience testbed program initiation of remote database selection access and networking evaluation <i>Period</i> 03/01/87-10/31/88 <i>Prin. Invest.</i> Collier, R. Landgrebe, D. A.</p>	<p>Purdue University <i>Obligations</i> FY88: \$100,000 NASA Tech. Officer HQ-E/Schmerling, E. R. HQ-E/Burnett, P.</p>	<p>3021 TOTAL: \$100,000 CASE Category 39-Env Sci, NEC</p>
<p>NAG 4-1 The integrated manual and automatic control of complex flight vehicles <i>Period</i> 01/01/80-11/30/88 <i>Prin. Invest.</i> Schmidt, D. K.</p>	<p>Purdue University <i>Obligations</i> FY88: \$50,000 NASA Tech. Officer ARC/Berry, D. T. ARC/Powers, B. G.</p>	<p>3014 TOTAL: \$410,921 CASE Category 41-Aero Engr</p>	<p>NAG10-18 Study of plants growth <i>Period</i> 02/04/85-11/30/88 <i>Prin. Invest.</i> Mitchell, C. A.</p>	<p>Purdue University <i>Obligations</i> FY88: \$50,499 NASA Tech. Officer KSC/Knott, W. M.</p>	<p>3022 TOTAL: \$198,809 CASE Category 55-Agriculture Sci</p>

**NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)**

NAS 8-34009	Purdue University	3023	Utilization of satellite cloud information to diagnose the energy state and transformations in extratropical cyclones	NGT 00-050-006	Purdue University	3031	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
06/01/81-05/31/89	FY88:	TOTAL: \$415,976		08/18/86-08/17/89	FY88: \$36,000	TOTAL: \$54,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Smith, P. J.	MSFC/Fichtl, G. H.	31-Atmos Sci		Grandt, A. F., Jr.	HQ-LE/Owens, F. C.	41-Aero Engr	
	MSFC/Kaufman, J.						
NAS 8-35187	Purdue University	3024	Dynamics and energetics of the South Pacific convergence zone during FGGE SOP-1	NGT 00-050-011	Purdue University	3032	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
10/12/83-12/31/87	FY88:	TOTAL: \$154,568		06/01/86-05/31/89	FY88: \$18,000	TOTAL: \$54,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Vincent, D. G.	MSFC/Kaufman, J. W.	31-Atmos Sci		Incropera, F. P.	HQ-LE/Owens, F. C.	46-Mech Engr	
	MSFC/Fichtl, G. H.						
NAS 8-37127	Purdue University	3025	South Pacific convergence zone and global scale circulations	NGT 00-050-053	Purdue University	3033	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
07/20/87-07/19/90	FY88: \$108,000	TOTAL: \$188,000		06/01/86-05/31/89	FY88: \$18,000	TOTAL: \$54,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Vincent, D. G.	MSFC/Kaufman, J.	31-Atmos Sci		Howell, K. C.	HQ-LE/Owens, F. C.	41-Aero Engr	
	MSFC/Miller, T. L.						
NCA 2-223	Purdue University	3026	Applications of fuzzy theories to multi objective system optimization	NGT 00-050-070	Purdue University	3034	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
06/01/87-05/31/89	FY88: \$25,000	TOTAL: \$52,240		06/01/86-05/31/88	FY88: \$18,000	TOTAL: \$36,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Rao, S. S.	ARC/Miura, H.	46-Mech Engr		Mitchell, O. R.	HQ-LE/Owens, F. C.	45-Elec Engr	
	ARC/Kidwell, G., Jr.						
NCC 2-100	Purdue University	3027	Higher plant species selection criteria for a closed ecological life support system: Photosynthetic and nutritional aspects	NGT 00-050-072	Purdue University	3035	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
09/01/80-03/31/89	FY88: \$88,800	TOTAL: \$690,565		06/01/86-06/30/89	FY88:	TOTAL: \$33,467	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Mitchell, C. A.	ARC/MacElroy, R. D.	55-Agriculture Sci		Andrisani, D.	HQ-LE/Owens, F. C.	41-Aero Engr	
NCC 2-349	Purdue University	3028	Timesharing performance as an indicator of pilot mental workload	NGT 00-050-154	Purdue University	3036	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
01/01/85-05/31/88	FY88:	TOTAL: \$60,835		06/01/87-05/31/89	FY88: \$35,334	TOTAL: \$35,334	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kantowitz, B.	ARC/Hart, S. G.	69-Psych, NEC		Sun, W. Y.	HQ-XE/Owens, F. C.	31-Atmos Sci	
NCC 2-367	Purdue University	3029	Research on handling qualities of VTOL vehicles	NGT 00-050-196	Purdue University	3037	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
07/01/85-05/31/87	FY88:	TOTAL: \$34,984		06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Brown, R. J.	ARC/Lebacqz, J. V.	41-Aero Engr		Kim, K.	HQ-XE/Owens, F. C.	51-Biological Sci	
NCC 2-459	Purdue University	3030	Optimum man vehicle dynamics	NGT 00-050-207	Purdue University	3038	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
01/01/87-02/29/88	FY88:	TOTAL: \$28,590		06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Schmidt, D. K.	ARC/Hilbert, K. B.	41-Aero Engr		Viskanta, R.	HQ-XE/Owens, F. C.	46-Mech Engr	
	ARC/Lebacqz, J. V.						
NSG 3135	Purdue University	3039	Aerodynamics parameters affecting turbopropeller performance				
<i>Period</i>	<i>Obligations</i>						
01/15/77-12/21/88	FY88: \$80,645	TOTAL: \$1,160,275					
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>					
Sullivan, J. P.	LERC/Mitchell, G. A.	41-Aero Engr					
A'hearn, M. F.							

**NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)**

NSG 3285 Purdue University 3040
Three-dimensional aerodynamic turbomachines
Period Obligations
07/01/79-12/03/89 FY88: \$60,000 TOTAL: \$818,423
Prin. Invest. NASA Tech. Officer CASE Category
Fleeter, S. LERC/Schumann, L. 41-Aero Engr

NAG 3-868 Rose-Hulman Institute of Technology 3041
Time history studies of the response of the classical elastic cantilever beam damped by internal mechanical means
Period Obligations
01/20/88-01/19/89 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
North, C. M. LERC/Brown, G. V. 46-Mech Engr
Nale, T. A.

NAG 3-890 Saint Marys College 3042
Materials development of high temperature electrical contacts for silicon carbide
Period Obligations
03/20/88-03/19/89 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Bellina, J. J. LERC/Matus, L. G. 47-Materials Engr

NAG 8-620 Tri State University 3043
To investigate the characteristics of drive and control system schemes for tether crawler systems
Period Obligations
02/01/87-03/31/88 FY88: \$20,000 TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Swenson, F. R. MSFC/Harrison, J. K. 19-Phys Sci, NEC

NAG 3-746 University of Evansville 3044
Kinetic theory model for the flow of a simple gas through and from a two dimensional nozzle
Period Obligations
10/01/86-01/29/89 FY88: \$20,000 TOTAL: \$44,139
Prin. Invest. NASA Tech. Officer CASE Category
Riley, B. LERC/Tacina, R. R. 42-Astro Engr
LERC/Braunscheidel, E. P.

NAG 1-727 University of Notre Dame 3045
Vortex dynamics of highly swept wings undergoing unsteady motions
Period Obligations
01/01/87-02/28/89 FY88: \$55,915 TOTAL: \$110,960
Prin. Invest. NASA Tech. Officer CASE Category
Nelson, R. C. LARC/Brandon, J. M. 41-Aero Engr
Batill, S. M. LARC/Nguyen, L. T.

NAG 2-258 University of Notre Dame 3046
An experimental study of the leading edge vortex structure of a delta wing
Period Obligations
10/01/83-01/31/88 FY88: TOTAL: \$174,721
Prin. Invest. NASA Tech. Officer CASE Category
Nelson, R. C. ARC/Schiff, L. B. 41-Aero Engr
Ng, T. ARC/Erickson, G.

NAG 3-428 University of Notre Dame 3047
Materials development of electrical contacts for B-Si C
Period Obligations
05/25/83-09/30/88 FY88: TOTAL: \$240,000
Prin. Invest. NASA Tech. Officer CASE Category
Zeller, M. V. LERC/Matus, L. G. 47-Materials Engr
Kwor, R.
Stanchina, W. E.

NAG 3-732 University of Notre Dame 3048
Effects of nonuniform flows on the aerodynamics and noise radiation of advanced turboprops
Period Obligations
06/15/86-02/13/89 FY88: \$55,315 TOTAL: \$124,301
Prin. Invest. NASA Tech. Officer CASE Category
Atassi, H. M. LERC/Groeneweg, J. F. 41-Aero Engr

NAG 5-557 University of Notre Dame 3049
Error control techniques for satellite and space communications
Period Obligations
06/01/85-07/31/89 FY88: \$64,800 TOTAL: \$218,829
Prin. Invest. NASA Tech. Officer CASE Category
Costello, D. GSFC/Miller, W. H. 49-Engr, NEC
GSFC/Morakis, J. C.

NCA 2-162 University of Notre Dame 3050
Leading edge vortex control by direct core blowing
Period Obligations
10/01/86-09/30/88 FY88: \$24,000 TOTAL: \$64,000
Prin. Invest. NASA Tech. Officer CASE Category
Nelson, R. C. ARC/Schreiner, J. A. 41-Aero Engr
Ng, T. T.

NGT 00-070-019 University of Notre Dame 3051
Graduate student researchers underrepresented minority focus program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$34,800
Prin. Invest. NASA Tech. Officer CASE Category
Nelson, R. C. HQ-LE/Owens, F. C. 41-Aero Engr
Batill, S. M.

NSG 1419 University of Notre Dame 3052
Structure of separated flow regions occurring near the leading edge of air foils including transition
Period Obligations
06/01/77-08/31/89 FY88: \$45,984 TOTAL: \$457,917
Prin. Invest. NASA Tech. Officer CASE Category
Mueller, T. J. LARC/Somers, D. M. 41-Aero Engr
LARC/Harvey, W. D.

NAG 5-964 Valpariso University 3053
Ultraviolet observations of the unique contact benign UZ piscium
Period Obligations
09/01/87-08/31/89 FY88: \$10,700 TOTAL: \$18,500
Prin. Invest. NASA Tech. Officer CASE Category
Hrivnak, B. J. GSFC/Kondo, Y. 11-Astronomy
Guinan, E. F.
Vilhu, O.

IOWA

NAS 8-33728 Drake University 3054
Assess use and development of a computer code rotating flows
Period Obligations
03/17/80-06/30/89 FY88: TOTAL: \$118,772
Prin. Invest. NASA Tech. Officer CASE Category
Kopicky, K. J. MSFC/Fowles, W. W. 19-Phys Sci, NEC
MSFC/Miller, T. L.

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

NAG 1-313 Iowa State University 3055
Simplified curve fits for the thermodynamic properties of equilibrium air
Period Obligations
12/01/82-09/30/87 FY88: TOTAL: \$45,859
Prin. Invest. NASA Tech. Officer CASE Category
Tannehill, J. C. LARC/Weilmuenster, K. J.
Walton, E. K. LARC/Hamilton, H. H.
29-Math/Cmputer,NEC

NAG 3-917 Iowa State University 3063
Detection of transition and separated flow regions on turbomachine blades with liquid crystal blading
Period Obligations
08/21/88-08/20/89 FY88: \$40,417 TOTAL: \$40,417
Prin. Invest. NASA Tech. Officer CASE Category
Okiishi, T. H. LERC/Hathaway, M. D. 41-Aero Engr

NAG 1-645 Iowa State University 3056
Numerical computation of viscous flow about unconventional airfoil shapes
Period Obligations
03/01/86-07/31/89 FY88: \$50,370 TOTAL: \$145,401
Prin. Invest. NASA Tech. Officer CASE Category
Tannehill, J. C. LARC/Sewall, W. G. 29-Math/Cmputer,NEC
Rajagopalan, R. G. LARC/Maestrello, L.

NAG 5-355 Iowa State University 3064
Diagnostic-analysis of diabatic heating and maintenance of thermal fields in the Southern Hemisphere
Period Obligations
08/01/83-12/31/89 FY88: \$31,000 TOTAL: \$198,045
Prin. Invest. NASA Tech. Officer CASE Category
Chen, T. C. GSFC/Peslen, C. A. 31-Atmos Sci

NAG 2-30 Iowa State University 3057
Low-speed, high-lift aerodynamics
Period Obligations
03/01/80-03/31/89 FY88: TOTAL: \$49,000
Prin. Invest. NASA Tech. Officer CASE Category
James, W. D. ARC/Olson, L. E. 41-Aero Engr
ARC/Corsiglia, V. R.

NAG 5-577 Iowa State University 3065
Global correction statistics based on satellite microwave brightness temperatures
Period Obligations
07/01/85-03/31/88 FY88: TOTAL: \$27,775
Prin. Invest. NASA Tech. Officer CASE Category
Stanford, J. L. GSFC/Straus, D. 31-Atmos Sci

NAG 2-151 Iowa State University 3058
Modeling of windblown dust on Mars and Venus
Period Obligations
01/01/82-11/30/88 FY88: \$30,785 TOTAL: \$112,628
Prin. Invest. NASA Tech. Officer CASE Category
Iverson, J. D. ARC/Smith, B. F. 19-Phys Sci, NEC
ARC/Pollack, J. B.

NAG 5-707 Iowa State University 3066
Observations of the brightest normal m-type mira variables
Period Obligations
09/01/85-08/31/89 FY88: \$32,900 TOTAL: \$76,549
Prin. Invest. NASA Tech. Officer CASE Category
Willson, L. A. GSFC/Kondo, Y. 11-Astronomy
Brugel, E.
Evans, N.

NAG 2-152 Iowa State University 3059
Application of viscous-inviscid interaction methods to transonic turbulent flows
Period Obligations
11/01/81-11/03/86 FY88: TOTAL: \$102,898
Prin. Invest. NASA Tech. Officer CASE Category
Pletcher, R. H. ARC/Murphy, J. D. 41-Aero Engr
ARC/King, L. S.

NAG 5-1060 Iowa State University 3067
Analysis of satellite derived ozone and water vapor measurements
Period Obligations
07/15/88-01/14/89 FY88: \$14,000 TOTAL: \$14,000
Prin. Invest. NASA Tech. Officer CASE Category
Stanford, J. L. GSFC/Wu, M. L. 31-Atmos Sci

NAG 2-245 Iowa State University 3060
Numerical computation of Space Shuttle orbital flow field
Period Obligations
10/01/83-05/01/88 FY88: TOTAL: \$143,001
Prin. Invest. NASA Tech. Officer CASE Category
Tannehill, J. C. ARC/Marvin, J. G. 41-Aero Engr
Prabhu, D. ARC/Chaussee, D. S.

NAG 9-112 Iowa State University 3068
Partially differentiated meteorite parent bodies
Period Obligations
05/01/85-05/01/89 FY88: TOTAL: \$54,970
Prin. Invest. NASA Tech. Officer CASE Category
Kracher, A. JSC/Browne, I. D. 47-Materials Engr

NAG 2-502 Iowa State University 3061
Numerical computation of the chemically reacting flow around the national aerospace plane
Period Obligations
03/01/88-02/28/89 FY88: \$53,585 TOTAL: \$53,585
Prin. Invest. NASA Tech. Officer CASE Category
Tannehill, J. C. ARC/Green, M. J. 42-Astro Engr

NAGW 1009 Iowa State University 3069
The theoretical models of gas dynamics star formation in interacting ring galaxies
Period Obligations
01/01/87-12/31/88 FY88: \$39,734 TOTAL: \$79,173
Prin. Invest. NASA Tech. Officer CASE Category
Struck Marcell H, C. HQ-EZ/Gillett, F. C. 11-Astronomy
HQ-EZ/Boggeess, N. W.

NAG 3-356 Iowa State University 3062
Investigation of unsteady axial-flow compressor stator flow
Period Obligations
11/30/82-09/30/88 FY88: TOTAL: \$35,230
Prin. Invest. NASA Tech. Officer CASE Category
Okiishi, T. H. LERC/Strazisar, A. J. 41-Aero Engr
Hathaway, M. D.

NAGW 1364 Iowa State University 3070
Mechanisms and implications of mass loss associated with stellar pulsation
Period Obligations
03/01/88-02/28/89 FY88: \$103,741 TOTAL: \$103,741
Prin. Invest. NASA Tech. Officer CASE Category
Willson, L. A. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Jones, W. V.

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

NCA 2-17	Iowa State University	3071			
Viscous-inviscid interaction procedures for three-dimensional flow in inlets and ducts					
<i>Period</i>		<i>Obligations</i>			
07/01/85-06/30/87	FY88:	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pletcher, R. H.	ARC/Steger, J. L.	46-Mech Engr			
	ARC/Dalsem, W. V.				
NCA 2-174	Iowa State University	3072			
The vorticity potential method for three dimensional unsteady compressible viscous flows					
<i>Period</i>		<i>Obligations</i>			
11/01/86-10/31/88	FY88: \$16,871	TOTAL: \$31,371			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pletcher, R. H.	ARC/Van Dalsem, W. R.	46-Mech Engr			
	ARC/Steger, J. L.				
NCA 2-190	Iowa State University	3073			
Development of a surface geometry description algorithm and corresponding computer code for surface grid generation					
<i>Period</i>		<i>Obligations</i>			
01/01/87-12/31/88	FY88: \$28,830	TOTAL: \$57,659			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Vogel, J. M.	ARC/Holst, T. L.	41-Aero Engr			
NCA 2-346	Iowa State University	3074			
Development of a perturbed flow field code					
<i>Period</i>		<i>Obligations</i>			
09/01/88-08/31/89	FY88: \$29,890	TOTAL: \$29,890			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wilson, L. N.	ARC/Holst, T. L.	41-Aero Engr			
	ARC/Lawrence, S. L.				
NCA 2-340501	Iowa State University	3075			
Development of a new PNS computer code craters					
<i>Period</i>		<i>Obligations</i>			
11/01/84-07/01/87	FY88:	TOTAL: \$55,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tannehill, J. C.	ARC/Chaussee, D. S.	41-Aero Engr			
NCC 2-174	Iowa State University	3076			
Theoretical models for the primordial atmospheres of terrestrial planets and for the interiors of Uranus and Neptune					
<i>Period</i>		<i>Obligations</i>			
02/01/82-02/28/89	FY88: \$19,974	TOTAL: \$148,213			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Richardson, S. M.	ARC/Pollack, J. B.	19-Phys Sci, NEC			
Podolzk, M.	ARC/Reynolds, R. T.				
NCC 2-476	Iowa State University	3077			
Numerical modeling of propulsive effects in complex flow fields					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/89	FY88: \$105,665	TOTAL: \$204,620			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pletcher, R. H.	ARC/Steger, J. L.	41-Aero Engr			
NGT 00-050-128	Iowa State University	3078			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pierson, B. L.	HQ-XE/Owens, F. C.	41-Aero Engr			
NGT 00-050-137	Iowa State University	3079			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Okiishi, T. H.	HQ-XE/Owens, F. C.	46-Mech Engr			
NGT 00-050-269	Iowa State University	3080			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/15/88-08/14/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Oldehoeft, A. E.	HQ-XE/Owens, F. C.	22-Computer Science			
NGT 16-002-802	Iowa State University	3081			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/84-05/31/89	FY88: \$18,000	TOTAL: \$84,100			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pletcher, R. H.	HQ-LB/Owens, F. C.	46-Mech Engr			
NAG 1-215	University of Iowa	3082			
Design sensitivity analysis and optimization of built-up structures					
<i>Period</i>		<i>Obligations</i>			
09/18/81-12/31/86	FY88:	TOTAL: \$260,850			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Haug, E. J.	LARC/Giles, G. L.	41-Aero Engr			
Choi, K. K.	LARC/Sobieski, J.				
NAG 3-449	University of Iowa	3083			
Interpretation of STS-3/plasma diagnostics package results in terms of large space structure plasma interactions					
<i>Period</i>		<i>Obligations</i>			
07/10/83-08/01/89	FY88: \$81,009	TOTAL: \$465,611			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kurth, W. S.	LERC/Purvis, C. K.	19-Phys Sci, NEC			
Gurnett, D. A.	LERC/Ferguson, D. C.				
NAG 3-893	University of Iowa	3084			
Supported transition metal and metal oxide catalysts for paratgrtho hydrogen conversion					
<i>Period</i>		<i>Obligations</i>			
03/30/88-09/30/88	FY88: \$69,880	TOTAL: \$69,880			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Coffman, R. E.	LERC/Williamson, G. S.	12-Chemistry			
	LERC/Hemminger, J. A.				
NAG 5-295	University of Iowa	3085			
Measurement of low-energy electrons and protons in the Earths magnetosphere					
<i>Period</i>		<i>Obligations</i>			
02/01/83-02/28/89	FY88: \$47,000	TOTAL: \$283,003			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Frank, L. A.	GSFC/Wales, R. O.	11-Astronomy			
NAG 5-310	University of Iowa	3086			
Dynamics Explorer plasma wave instrument					
<i>Period</i>		<i>Obligations</i>			
04/15/83-10/31/88	FY88: \$272,900	TOTAL: \$1,619,619			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gurnett, D. A.	GSFC/Bullock, G. D.	19-Phys Sci, NEC			
	GSFC/Hoffman, R. A.				

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

NAG 5-483 University of Iowa 3087
Global auroral imaging
Period Obligations
11/01/84-12/31/88 FY88: \$456,476 TOTAL: \$2,165,315
Prin. Invest. NASA Tech. Officer CASE Category
Frank, L. A. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAG 5-570 University of Iowa 3088
The role of plasma wave turbulence in the formation of shock waves in collisionless plasmas
Period Obligations
07/01/85-08/31/87 FY88: TOTAL: \$82,579
Prin. Invest. NASA Tech. Officer CASE Category
Mellott, M. GSFC/Wales, R. O. 11-Astronomy
Greenstadt, E. W.

NAG 5-805 University of Iowa 3089
Investigation of the diffuse ultraviolet background with dynamics explorer data
Period Obligations
07/15/86-01/14/88 FY88: TOTAL: \$16,303
Prin. Invest. NASA Tech. Officer CASE Category
Fix, J. D. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAG 8-635 University of Iowa 3090
Use of satellite data and modelling to assess the influence of stratospheric processes on the troposphere
Period Obligations
08/01/87-07/31/89 FY88: \$58,471 TOTAL: \$98,374
Prin. Invest. NASA Tech. Officer CASE Category
Nathan, T. R. MSFC/Miller, T. L. 31-Atmos Sci
Yarger, D. N. MSFC/Kaufman, J. W.

NAGW 256 University of Iowa 3091
Wave accessibility and ducting
Period Obligations
10/15/81-07/31/87 FY88: TOTAL: \$124,000
Prin. Invest. NASA Tech. Officer CASE Category
Calvert, W. HQ-EE/Lynch, J. T. 13-Physics
HQ-EL/Quaide, W. L.

NAGW 796 University of Iowa 3092
Photometry of comet Halley
Period Obligations
08/01/85-07/31/88 FY88: TOTAL: \$98,204
Prin. Invest. NASA Tech. Officer CASE Category
Neff, J. S. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAGW 806 University of Iowa 3093
Shock associated alfvén waves in the solar wind
Period Obligations
10/01/85-12/31/88 FY88: \$65,000 TOTAL: \$180,200
Prin. Invest. NASA Tech. Officer CASE Category
Spangler, S. R. HQ-ES/Desch, M. D. 13-Physics
HQ-EE/Eastman, T. E.

NAGW 827 University of Iowa 3094
Investigations of wave emissions from planetary magnetospheres
Period Obligations
10/01/85-05/31/89 FY88: \$32,000 TOTAL: \$119,000
Prin. Invest. NASA Tech. Officer CASE Category
Grabbe, C. L. HQ-ES/Desch, M. D. 13-Physics
HQ-EE/Parks, G. K.

NAGW 831 University of Iowa 3095
A comparison of plasma processes in the solar wind and the interstellar medium
Period Obligations
12/01/85-10/31/88 FY88: \$127,000 TOTAL: \$292,000
Prin. Invest. NASA Tech. Officer CASE Category
Spangler, S. R. HQ-E/Rosendhal, J. D. 19-Phys Sci, NEC
HQ-EP/Konkel, R. M.

NAGW 871 University of Iowa 3096
A multi-disciplinary study of cosmic dust
Period Obligations
01/01/86-12/31/88 FY88: \$100,000 TOTAL: \$300,000
Prin. Invest. NASA Tech. Officer CASE Category
Fix, J. D. HQ-E/Alexander, J. K. 19-Phys Sci, NEC
HQ-EP/Konkel, R. M.

NAGW 970 University of Iowa 3097
The physics of magnetospheric boundary layers
Period Obligations
08/25/86-11/30/88 FY88: \$215,000 TOTAL: \$580,000
Prin. Invest. NASA Tech. Officer CASE Category
Goertz, C. K. HQ-EE/Butler, D. M. 13-Physics
GSFC/Curtis, S. A.

NAGW 1156 University of Iowa 3098
Laboratory investigations of electrostatic ion cyclotron waves plasma flow body interactions and magnetized double layers
Period Obligations
08/15/87-07/31/89 FY88: \$53,000 TOTAL: \$103,000
Prin. Invest. NASA Tech. Officer CASE Category
D'angelo, N. HQ-ES/Desch, M. D. 13-Physics
Merlino, R. L. HQ-ES/Perry, T. W.

NAGW 1188 University of Iowa 3099
Biometric band albedo and global radiative energy balance of Uranus
Period Obligations
09/15/87-09/14/88 FY88: TOTAL: \$4,074
Prin. Invest. NASA Tech. Officer CASE Category
Neff, J. S. HQ-EL/Quaide, W. L. 19-Phys Sci, NEC
HQ-EL/Fox, K.

NAGW 1206 University of Iowa 3100
Analysis of uranian radio emissions
Period Obligations
08/15/87-08/14/88 FY88: \$85,610 TOTAL: \$85,610
Prin. Invest. NASA Tech. Officer CASE Category
Calvert, W. HQ-EL/Quaide, W. L. 19-Phys Sci, NEC
HQ-EL/Slavin, J. A.

NAGW 1239 University of Iowa 3101
Particle simulations in magnetospheric plasmas
Period Obligations
11/01/87-10/30/88 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Nishikawa, K. I. HQ-ES/Desch, M. D. 13-Physics
HQ-ES/Parks, G.

NAS 2-12327 University of Iowa 3102
Analysis and interpretation of data from geiger tube telescope on Pioneer 10 and 11
Period Obligations
11/01/85-10/31/88 FY88: \$119,873 TOTAL: \$347,437
Prin. Invest. NASA Tech. Officer CASE Category
Van Allen, J. A. ARC/Craig, R. A. 11-Astronomy
ARC/Fimmel, R. O.

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

NAS 5-26843 University of Iowa 3103
A plasma wave investigation for the origin of plasmas in the Earth's neighborhood polar plasma laboratory
Period *Obligations*
06/07/82-12/31/88 FY88: \$489,176 TOTAL: \$836,405
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Wainscott, F. 13-Physics

NAS 5-26857 University of Iowa 3104
A plasma wave investigation for the origin of plasmas in the Earth's neighborhood geomagnetic tail laboratory
Period *Obligations*
06/07/82-11/30/90 FY88: \$948,000 TOTAL: \$1,344,370
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Wainscott, F. 13-Physics

NAS 5-26858 University of Iowa 3105
Conduct a definition study of the comprehensive plasmas instrument for measurement of plasma in the Earth's magnetotail under the OPEN project
Period *Obligations*
05/24/82-06/30/92 FY88: \$2,449,654 TOTAL: \$2,897,759
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Wainscott, F. 11-Astronomy

NAS 5-27358 University of Iowa 3106
Definition of advanced auroral imaging instrumentation at visible wavelengths (open mission)
Period *Obligations*
12/10/82-06/30/88 FY88: \$364,921 TOTAL: \$746,469
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/O'Brien, J. J. 13-Physics

NAS 5-28700 University of Iowa 3107
Provide data reduction and analysis for the International Sun Earth Explorer (ISEE 1 and 2) spacecraft
Period *Obligations*
01/24/85-11/24/88 FY88: \$188,400 TOTAL: \$1,156,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. GSFC/Wales, R. O. 31-Atmos Sci

NAS 5-28701 University of Iowa 3108
Data reduction and analysis for the ISEE spacecraft's plasma wave experiment
Period *Obligations*
01/02/85-11/02/88 FY88: \$218,000 TOTAL: \$1,207,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Wales, R. O. 31-Atmos Sci

NAS 5-30365 University of Iowa 3109
Wideband radio wave and radio interferometry investigation
Period *Obligations*
10/01/88-09/30/89 FY88: \$94,484 TOTAL: \$94,484
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Stich, K. 13-Physics

NAS 8-32807 University of Iowa 3110
Definition of instruments for an ejectable plasma diagnostics package for Spacelab 2 mission
Period *Obligations*
10/03/77-06/30/88 FY88: TOTAL: \$6,448,288
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. MSFC/Soutullo, B. MSFC/Ise, R. 31-Atmos Sci

NAS 8-33770 University of Iowa 3111
Research study, a recoverable plasma diagnostics package for spacelab
Period *Obligations*
07/25/80-09/30/92 FY88: TOTAL: \$6,720,610
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. MSFC/Soutullo, B. C. MSFC/Ise, R. 13-Physics

NCC 1-97 University of Iowa 3112
Application of the STEM-II comprehensive eulerian combined transport/transformation/removal model of data from the FY-84 Philadelphia field study
Period *Obligations*
04/23/85-12/31/88 FY88: TOTAL: \$179,840
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carmichael, G. R. LARC/Ritter, J. A. LARC/Fishman, J. 31-Atmos Sci

NGL 16-001-002 University of Iowa 3113
Theoretical and experimental studies related to particles and fields associated with major bodies of solar system and with interplanetary space
Period *Obligations*
05/23/62-11/30/88 FY88: \$111,745 TOTAL: \$6,810,527
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. HQ-ES/Desch, M. D. HQ-ES/Parks, G. K. 13-Physics

NGL 16-001-043 University of Iowa 3114
Waves in plasmas
Period *Obligations*
03/28/67-11/30/88 FY88: \$241,721 TOTAL: \$2,626,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. HQ-ES/Desch, M. D. HQ-ES/Parks, G. K. 13-Physics

NGT 00-050-034 University of Iowa 3115
NASA graduate student researchers program
Period *Obligations*
06/01/86-07/31/87 FY88: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-204 University of Iowa 3116
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
D'angelo, N. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-250 University of Iowa 3117
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/89 FY88: \$34,800 TOTAL: \$34,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Robinson, J. HQ-XE/Owens, F. C. 45-Elec Engr

NGT 00-050-362 University of Iowa 3118
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arora, J. HQ-XE/Owens, F. C. 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)**

NAG 1-867	University of Kansas	3134	NAGW 939	University of Kansas	3142
Analysis of flight data obtained on a pusher propeller on a turboprop testbed aircraft			Shocks type 1 tail rays and cometary atmospheres		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/16/88-03/15/89	FY88: \$24,968	TOTAL: \$24,968	07/01/86-09/30/87	FY88:	TOTAL: \$15,651
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Farokhi, S.	LARC/Hastings, E. C.	41-Aero Engr	Beard, D. B.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	LARC/Phelps, A. E.			HQ-EL/Quaide, W. L.	
NAG 1-912	University of Kansas	3135	NAGW 1242	University of Kansas	3143
A program of augmented telerobotic research			To model the magnetic field of Jupiter		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/15/88-01/14/89	FY88: \$50,000	TOTAL: \$50,000	12/01/87-11/30/88	FY88: \$21,364	TOTAL: \$21,364
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barr, B. G.	LARC/Mixon, R. W.	46-Mech Engr	Beard, D. B.	HQ-EE/Theis, R. F.	13-Physics
	LARC/Hankins, W. W.			HQ-EE/Eastman, T. E.	
NAG 3-841	University of Kansas	3136	NAGW 1278	University of Kansas	3144
Effect of streamline curvature and swirl on turbulence modelling in curved ducts			Radar scattering from water surfaces		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/88-01/01/89	FY88: \$32,270	TOTAL: \$32,270	01/01/88-12/31/88	FY88: \$76,485	TOTAL: \$76,485
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Farokhi, S.	LERC/Towne, C. E.	41-Aero Engr	Gogineni, P.	HQ-EE/Richman, J. G.	33-Oceanography
Cheng, G.	LERC/Anderson, B. H.			HQ-EE/Wilson, S. W.	
NAG 5-271	University of Kansas	3137	NAGW 1288	University of Kansas	3145
Determination of the sources of radar scattering			Topology of large scale structure of the universe		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/82-11/30/87	FY88:	TOTAL: \$242,509	03/01/88-02/28/89	FY88: \$39,663	TOTAL: \$39,663
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, R. K.	GSFC/Oseroff, H.	55-Agriculture Sci	Melott, A. L.	HQ-EZ/Stachnik, R. V.	11-Astronomy
Ulaby, F.					
NAG 5-389	University of Kansas	3138	NAGW 1357	University of Kansas	3146
Measurements of micrometeorological parameters of testing large-scale models			Solar lader planetary particles: Development preservation and use of the ionospheres data set		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/84-05/14/89	FY88: \$493,001	TOTAL: \$1,383,001	04/01/88-03/31/89	FY88: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kanemasu, E. T.	GSFC/Hall, F. G.	31-Atmos Sci	Armstrong, T. P.	HQ-ES/Mellott, M. M.	13-Physics
Asrar, G.				HQ-ES/Jones, W. V.	
NAG 5-912	University of Kansas	3139	NASW 4248	University of Kansas	3147
An airborne study of microwave surface and boundary layer heat and moisture fluxes			Write a history of NASA space station management 1982-1986		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/15/87-06/14/89	FY88: \$24,981	TOTAL: \$70,980	10/13/87-10/12/88	FY88: \$71,769	TOTAL: \$71,769
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, R. K.	GSFC/Owe, M.	39-Env Sci, NEC	Lewin, T. S.	HQ-/Fries, S.	73-History
	GSFC/Hall, F.		Narayanan, V. K.		
NAGW 917	University of Kansas	3140	NCC 1-79	University of Kansas	3148
Jovian energetic particles magnetic fields and natural satellites			The specification, integration, and testing of a unified advanced flight management/flight control system		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/86-07/31/87	FY88:	TOTAL: \$17,664	06/14/83-09/27/87	FY88:	TOTAL: \$166,447
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Armstrong, T. P.	HQ-EE/Fitzenreiter, R. J.	13-Physics	Downing, D. R.	LARC/Middleton, D. B.	41-Aero Engr
	HQ-EE/Eastman, T. E.		Fortin, P. E.		
NAGW 921	University of Kansas	3141	NCC 2-175	University of Kansas	3149
This is a no cost time extension data and geographic information systems			Investigation of a free-tip rotor configuration		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/86-10/31/87	FY88:	TOTAL: \$160,000	02/01/82-12/31/88	FY88:	TOTAL: \$230,593
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martinko, E. A.	HQ-EE/Tuyahov, A. J.	39-Env Sci, NEC	Lan, C. E.	ARC/Stroub, R. H.	41-Aero Engr
			Fortin, P. E.	ARC/Young, L.	
			Kumagai, H.		

**NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)**

NCC 2-242 University of Kansas 3150
V/STOL handling and control power requirements
Period Obligations
06/01/83-02/14/88 FY88: TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Roskam, J. ARC/Lebacqz, J. V. 41-Aero Engr

NCC 2-351 University of Kansas 3151
Verifying the use of a whirl rig to check free tip rotor system
Period Obligations
06/01/85-09/30/89 FY88: \$56,594 TOTAL: \$174,413
Prin. Invest. NASA Tech. Officer CASE Category
Fortin, P. E. ARC/Stroub, R. H. 41-Aero Engr
Martin, D. ARC/Young, L. A.

NCC 2-396 University of Kansas 3152
Research support computerized structural analysis
Period Obligations
01/01/86-12/31/87 FY88: \$4,000 TOTAL: \$48,050
Prin. Invest. NASA Tech. Officer CASE Category
Fortin, P. ARC/Gupta, K. K. 41-Aero Engr
ARC/Knight, R. J.

NCC 2-417 University of Kansas 3153
Modification of rotorcraft dynamics using active controls
Period Obligations
09/01/86-08/31/89 FY88: \$66,376 TOTAL: \$186,169
Prin. Invest. NASA Tech. Officer CASE Category
Van Aken, J. M. ARC/Felker, F. F. 41-Aero Engr
Fortin, P. E. ARC/Jacklin, S. A.

NCC 3-56 University of Kansas 3154
Experimental and analytical investigation of existed turbulent shear layers
Period Obligations
01/01/86-01/29/89 FY88: \$68,718 TOTAL: \$164,672
Prin. Invest. NASA Tech. Officer CASE Category
Farokhi, S. LERC/Rice, E. J. 41-Aero Engr

NGT 00-050-113 University of Kansas 3155
NASA graduate student researchers program
Period Obligations
08/16/87-08/15/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Barr, B. G. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-286 University of Kansas 3156
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Moore, R. K. HQ-XE/Owens, F. C. 45-Elec Engr

NGT 00-050-317 University of Kansas 3157
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$17,245 TOTAL: \$17,245
Prin. Invest. NASA Tech. Officer CASE Category
Moore, R. K. HQ-XE/Owens, F. C. 45-Elec Engr

NSG 1629 University of Kansas 3158
An investigation of vortex induced aerodynamic characteristics of supersonic cruise configurations
Period Obligations
06/16/79-06/30/87 FY88: TOTAL: \$206,826
Prin. Invest. NASA Tech. Officer CASE Category
Lan, C. E. LARC/Gainer, T. G. 41-Aero Engr
LARC/Lamar, J. E.

NSG 3290 University of Kansas 3159
Self consistent numerical simulation of plasma insulator interactions in space
Period Obligations
08/16/79-06/28/89 FY88: \$45,000 TOTAL: \$457,571
Prin. Invest. NASA Tech. Officer CASE Category
Armstrong, T. P. LERC/Grier, N. T. 13-Physics
Friauf, R. LERC/Stevens, N. J.

NAG 3-284 Wichita State University 3160
Application of electromagnetic impulse de-icing to general aviation aircraft
Period Obligations
05/15/82-09/19/87 FY88: TOTAL: \$947,219
Prin. Invest. NASA Tech. Officer CASE Category
Zumwalt, G. W. LERC/Reinmann, J. 41-Aero Engr
Bernhart, W. LERC/Shaw, R. J.
Schrag, R.

NAG 3-566 Wichita State University 3161
Program to verify water droplet trajectory codes
Period Obligations
07/25/84-11/28/88 FY88: \$124,999 TOTAL: \$535,745
Prin. Invest. NASA Tech. Officer CASE Category
Zumwalt, G. W. LERC/Bidwell, C. S. 41-Aero Engr

NAG 3-684 Wichita State University 3162
Water impingement/icing in a highly integrated inlet
Period Obligations
01/07/86-10/31/88 FY88: \$15,000 TOTAL: \$104,738
Prin. Invest. NASA Tech. Officer CASE Category
Zumwalt, G. W. LERC/Bidwell, C. S. 41-Aero Engr

KENTUCKY

NAS 8-36649 Eastern Kentucky University 3163
Study of activation of metal samples including samples from Spacelab 2
Period Obligations
07/01/85-12/31/88 FY88: TOTAL: \$8,999
Prin. Invest. NASA Tech. Officer CASE Category
Laird, C. E. MSFC/Fishman, G. J. 46-Mech Engr
MSFC/Parnell, T. A.

NCC 1-114 Murray State University - Ky. 3164
Feasibility and development study of the use of X ray fluorescence for the analysis of wear metals
Period Obligations
05/01/87-04/30/88 FY88: TOTAL: \$21,494
Prin. Invest. NASA Tech. Officer CASE Category
Maddox, W. E. LARC/Kelliner, W. C. 43-Chem Engr

**NASA'S UNIVERSITY PROGRAM
KENTUCKY (Continued)**

NAG 1-707 University of Kentucky 3165
Carbon monoxide distributions determinations for a global transport model
Period Obligations
11/01/86-09/30/88 FY88: TOTAL: \$16,383
Prin. Invest. NASA Tech. Officer CASE Category
Peters, L. K. LARC/Reichle, H. G. 31-Atmos Sci
LARC/Wallio, H. A.

NAG 3-912 University of Kentucky 3166
Noise prediction program for gear housing noise
Period Obligations
07/01/88-06/30/89 FY88: \$69,895 TOTAL: \$69,895
Prin. Invest. NASA Tech. Officer CASE Category
Seybert, A. F. LERC/Oswald, F. B. 46-Mech Engr

NAG 9-298 University of Kentucky 3167
Use of oscillatory LBNP and spectral analysis to determine cardiovascular adaption to the microgravity environment
Period Obligations
07/01/88-07/01/89 FY88: \$90,000 TOTAL: \$90,000
Prin. Invest. NASA Tech. Officer CASE Category
Knapp, C. F. JSC/Charles, J. B. 56-Medical Sciences

NAS 3-23901 University of Kentucky 3168
Scientific support for an orbiter experiment on solid surface combustion
Period Obligations
12/19/84-04/03/93 FY88: \$70,000 TOTAL: \$296,638
Prin. Invest. NASA Tech. Officer CASE Category
Altenkirch, R. A. LERC/Olson, S. L. 49-Engr, NEC

NASW 4142 University of Kentucky 3169
Operation G of a industrial applications program IAC
Period Obligations
07/01/85-06/30/87 FY88: TOTAL: \$174,074
Prin. Invest. NASA Tech. Officer CASE Category
Roeder, P. HQ/Bivins, R. 99-Multi-Discip
HQ/Ault, L.

NASW 4186 University of Kentucky 3170
Operation of an Industrial Applications Center
Period Obligations
07/01/86-06/30/88 FY88: \$115,000 TOTAL: \$473,000
Prin. Invest. NASA Tech. Officer CASE Category
Strong, W. R. HQ/Bivins, R. 99-Multi-Discip

NCC 2-483 University of Kentucky 3171
Computational studies of atmospheric molecular collision processes important to operation of the aeroassisted orbital transfer vehicle
Period Obligations
08/01/87-06/30/89 FY88: TOTAL: \$21,051
Prin. Invest. NASA Tech. Officer CASE Category
Pattengill, M. D. ARC/Jaffe, R. L. 12-Chemistry

NAG 2-386 University of Louisville 3172
Regulatory mechanism of muscle disuse atrophy in adult rat
Period Obligations
11/01/85-10/31/88 FY88: \$65,830 TOTAL: \$173,210
Prin. Invest. NASA Tech. Officer CASE Category
Musacchia, X. J. ARC/Grindeland, R. E. 51-Biological Sci
Steffin, J. M.
Fell, R. D.

NAG 9-181 University of Louisville 3173
Effect of space flight on interferon and interleukin production
Period Obligations
10/01/86-10/01/89 FY88: \$36,000 TOTAL: \$100,994
Prin. Invest. NASA Tech. Officer CASE Category
Sonnenfeld, G. JSC/Taylor, G. R. 56-Medical Sciences

NAG 9-234 University of Louisville 3174
Cosmos 87 immunology studies
Period Obligations
06/08/87-06/07/88 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Sonnenfeld, G. JSC/Taylor, G. R. 56-Medical Sciences

NAGW 70 University of Louisville 3175
Space biology research project
Period Obligations
06/01/80-11/30/88 FY88: \$155,000 TOTAL: \$1,593,964
Prin. Invest. NASA Tech. Officer CASE Category
Musacchia, X. J. HQ-EB/Halstead, T. W. 51-Biological Sci

NGT 00-050-021 University of Louisville 3176
NASA graduate student researchers program
Period Obligations
07/01/86-06/30/89 FY88: \$17,988 TOTAL: \$53,898
Prin. Invest. NASA Tech. Officer CASE Category
Fell, R. D. HQ-LE/Owens, F. C. 69-Psych, NEC

LOUISIANA

NAG 2-528 Louisiana State University - Baton Rouge 3177
Critical review of charged particles astronomy at Saturn: The evidence for co-orbiting material in the inner satellite system
Period Obligations
07/01/88-11/30/88 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Wefel, J. P. ARC/Cuzzi, J. N. 11-Astronomy
Cooper, J. F.

NAG 3-477 Louisiana State University - Baton Rouge 3178
Shock tube study of the fuel structure effects on the chemical kinetic mechanisms responsible for soot formation
Period Obligations
10/25/83-10/23/86 FY88: TOTAL: \$179,637
Prin. Invest. NASA Tech. Officer CASE Category
Frenklach, M. LERC/Lezberg, E. A. 43-Chem Engr

NAG 5-71 Louisiana State University - Baton Rouge 3179
Ultraviolet spectroscopy of selected astronomical sources
Period Obligations
07/01/80-07/31/89 FY88: \$36,900 TOTAL: \$147,674
Prin. Invest. NASA Tech. Officer CASE Category
Drilling, J. S. GSFC/Kondo, Y. 11-Astronomy
Hunger, K.

**NASA'S UNIVERSITY PROGRAM
LOUISIANA (Continued)**

NAG 5-540 Louisiana State University - Baton Rouge 3180

Research relative to database interfaces on NASA's heterogeneous database systems

<i>Period</i>	<i>Obligations</i>	
05/15/85-02/15/89	FY88:	TOTAL: \$85,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Iyengar, S. S.	GSFC/Jacobs, B.	22-Computer Science
	GSFC/Berbert, J.	

NAG13-4 Louisiana State University - Baton Rouge 3187

Effects of cold front passages on geomorphic evolution and sediment dynamics of a river dominated mid latitude coast

<i>Period</i>	<i>Obligations</i>	
02/10/87-02/09/88	FY88: \$72,000	TOTAL: \$147,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huh, O. K.	NSTL/Joyce, A. T.	32-Geological Sci

NAG 5-990 Louisiana State University - Baton Rouge 3181

Element abundance in white dwarfs

<i>Period</i>	<i>Obligations</i>	
08/15/87-08/14/89	FY88: \$4,800	TOTAL: \$16,998
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Koester, D.	GSFC/Kondo, Y.	11-Astronomy

NAG13-5 Louisiana State University - Baton Rouge 3188

The utility of the airborne electromagnetic profiles for characterization of coastal sediments and marsh soils

<i>Period</i>	<i>Obligations</i>	
04/28/87-04/27/88	FY88:	TOTAL: \$20,051
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hudnall, W. H.	NSTL/Joyce, A. T.	32-Geological Sci

NAG 9-136 Louisiana State University - Baton Rouge 3182

Investigation of early Archean terrestrial impact ejecta, south Africa and western Australia

<i>Period</i>	<i>Obligations</i>	
03/01/86-05/01/89	FY88: \$18,500	TOTAL: \$53,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Byerly, G. R.	JSC/Phinney, W. C.	32-Geological Sci

NAS 5-28756 Louisiana State University - Baton Rouge 3189

Utilization of remote sensing of thematic mapper data to improve our understanding of estuarine processes and their influences

<i>Period</i>	<i>Obligations</i>	
09/12/85-01/01/89	FY88:	TOTAL: \$171,501
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gosselink, J. G.	GSFC/Oseroff, H.	39-Env Sci, NEC

NAGW 48 Louisiana State University - Baton Rouge 3183

Electron positive ion interaction

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/89	FY88: \$40,000	TOTAL: \$341,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henry, R. J.	HQ-EL/Fox, K.	21-Mathematics
	HQ-EL/Quaide, W. L.	

NAS 5-30123 Louisiana State University - Baton Rouge 3190

Assess hardware and software needs to support NASA GSFC India ISRO joint science programs in environmental applications

<i>Period</i>	<i>Obligations</i>	
07/15/87-12/31/88	FY88:	TOTAL: \$19,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hill, M.	GSFC/Stetina, F. L.	19-Phys Sci, NEC
Harlow, C. A.	GSFC/Vermillion, C. H.	

NAGW 550 Louisiana State University - Baton Rouge 3184

Origin and transport of high energy particles in this galaxy

<i>Period</i>	<i>Obligations</i>	
03/01/84-02/28/87	FY88:	TOTAL: \$70,347
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wefel, J. P.	HQ-EZ/Cline, T. L.	11-Astronomy
	HQ-EZ/Bunner, A. N.	

NCA 2-326 Louisiana State University - Baton Rouge 3191

A solution adaptive grid procedure for high speed flow applications

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/90	FY88: \$28,709	TOTAL: \$28,709
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Acharya, S.	ARC/Holst, T. L.	46-Mech Engr
	ARC/Lawrence, S. L.	

NAGW 1027 Louisiana State University - Baton Rouge 3185

Composition and transport of galactic cosmic rays

<i>Period</i>	<i>Obligations</i>	
12/01/86-11/30/88	FY88: \$108,000	TOTAL: \$300,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wefel, J. P.	HQ-ES/Mellott, M. M.	13-Physics
	HQ-ES/Eastman, T. E.	

NAG 9-167 Louisiana State University - Shreveport 3192

Study of anti drug motion sickness

<i>Period</i>	<i>Obligations</i>	
07/01/86-07/01/89	FY88: \$60,000	TOTAL: \$147,072
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wood, C. D.	JSC/Kutyna, F. A.	56-Medical Sciences
Manno, J. E.		
Redetzki, H. M.		

NAGW 1247 Louisiana State University - Baton Rouge 3186

Cosmic ray positron research and silicon track detector development

<i>Period</i>	<i>Obligations</i>	
12/01/87-11/30/88	FY88: \$304,157	TOTAL: \$304,157
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, W. V.	HQ-ES/Mellott, M. M.	13-Physics
	HQ-ES/Eastman, T. E.	

NAG 9-176 Louisiana Tech University 3193

Design of a blast and ballistic impact protection system for the NASA radioisotope thermoelectric generator

<i>Period</i>	<i>Obligations</i>	
09/01/86-01/01/89	FY88: \$20,000	TOTAL: \$69,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Callens, E. E.	JSC/Hoffman, W. C.	46-Mech Engr
Jordan, W. M.	JSC/Graves, T. J.	

**NASA'S UNIVERSITY PROGRAM
LOUISIANA (Continued)**

NAGW 1225 Northeast Louisiana University 3194
Geologic mapping of the lunae planium outflow region
Period *Obligations*
10/01/87-09/30/88 FY88: \$11,895 TOTAL: \$11,895
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dehon, R. A. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAG 3-815 Tulane University 3202
Study of crack growth development in materials with micro defects
Period *Obligations*
08/01/87-02/28/89 FY88: \$42,500 TOTAL: \$59,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rubinstein, A. A. LERC/Calomino, A. M. 46-Mech Engr
LERC/Shannon, J. L.

NAGW 1422 Northeast Louisiana University 3195
Stratigraphy and surface processes in the elysium utopia region of Mars
Period *Obligations*
03/01/88-07/31/89 FY88: \$11,895 TOTAL: \$11,895
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dehon, R. A. HQ-EL/Underwood, J. R. 32-Geological Sci

NCA 2-800501 Tulane University 3203
Determination of sequence homology of lac dna sequences of thermus t2 and escherichia coli related to motion sickness
Period *Obligations*
01/01/85-08/31/88 FY88: TOTAL: \$10,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, E. J. ARC/MacElroy, R. D. 51-Biological Sci

NSG 7534 Northeast Louisiana University 3196
Stratigraphy and crater morphology
Period *Obligations*
02/01/79-11/30/88 FY88: \$18,661 TOTAL: \$145,067
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dehon, R. HQ-EL/Scott, D. H. 32-Geological Sci
HQ-EL/Boyce, J. M.

NGT 00-050-025 Tulane University 3204
NASA graduate student researchers program
Period *Obligations*
07/01/86-09/30/87 FY88: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, B. R. HQ-LE/Owens, F. C. 19-Phys Sci, NEC

NAGW 701 Southern Univ & A&M College 3197
Development of theoretical algorithms and models for pricing mechanisms
Period *Obligations*
12/21/84-11/30/88 FY88: \$306,468 TOTAL: \$1,065,097
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roquemore, L. HQ-SU/Halpern, R. E. 21-Mathematics
HQ-SU/Walker, J.

NGT 00-050-176 Tulane University 3205
NASA graduate student researchers program
Period *Obligations*
07/01/87-06/30/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, B. R. HQ-XE/Owens, F. C. 56-Medical Sciences

NAS 1-15335 Southern Univ & A&M College 3198
Atomic oxygen stimulated outgassing experiment for the long duration exposure facility
Period *Obligations*
04/07/78-01/01/91 FY88: TOTAL: \$72,426
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scott, R. L. LARC/Carter, D. J., Jr. 31-Atmos Sci

NAG 1-485 University of New Orleans 3206
Optimal application of Morrisons interative noise removal for deconvolution
Period *Obligations*
06/01/84-08/31/87 FY88: TOTAL: \$34,056
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ioup, G. E. LARC/Wood, G. M., Jr. 19-Phys Sci, NEC
Ioup, J. W.

NASW 4231 Southern Univ & A&M College 3199
Operation of Industrial Application Center for dissemination of NASA technology
Period *Obligations*
04/24/87-04/24/88 FY88: \$215,232 TOTAL: \$505,431
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roquemore, L. HQ/Gilbert, R. 99-Multi-Discip

NAG 1-804 University of New Orleans 3207
Determination of design and operation parameters for upper atmospheric research instrumentation to yield optimum resolution with deconvolution
Period *Obligations*
08/01/87-07/31/89 FY88: \$46,303 TOTAL: \$69,705
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ioup, G. E. LARC/Wood, G. M. 19-Phys Sci, NEC
Ioup, J. W. LARC/Lewis, B. W.

NGT 19-010-900 Southern Univ & A&M College 3200
NASA recon to train undergraduate scientists and engineers in the use of state of the art scientific and technical information systems
Period *Obligations*
07/01/85-12/31/87 FY88: TOTAL: \$125,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roquemore, L. HQ-NI/Wilson, J. 22-Computer Science
HQ-U/Pohly, J.

NCA 2-320 University of New Orleans 3208
Grain shattering phase transformation and partial vaporization in interstellar shocks
Period *Obligations*
05/30/88-12/31/88 FY88: \$12,622 TOTAL: \$12,622
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seab, C. G. ARC/Hollenbach, D. J. 13-Physics

NAG 2-101 Tulane University 3201
Localization and histochemical and physiologic characteristics of the central emetic apparatus related to motion sickness
Period *Obligations*
03/01/81-02/28/89 FY88: TOTAL: \$337,735
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brizzee, K. R. ARC/Mehler, W. R. 56-Medical Sciences
Norris, C. H. ARC/Corcoran, M. L.
Pedigo, N. W.

NCA 2-273 University of Southwestern Louisiana 3209
Modeling the particulate disks around nearby main sequence stars
Period *Obligations*
01/01/88-12/31/88 FY88: \$4,290 TOTAL: \$4,290
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Whitmire, D. P. ARC/Reynolds, R. T. 11-Astronomy
ARC/Cassen, P. M.

**NASA'S UNIVERSITY PROGRAM
LOUISIANA (Continued)**

NGT 00-090-004 Xavier University - Louisiana 3210
Engineering bridge program
Period *Obligations*
05/01/87-04/30/89 FY88: \$112,683 TOTAL: \$147,653
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baker, G. W. HQ-U/Warren, L. 49-Engr, NEC
HQ-U/Morgolis, M.

NGT 00-090-011 Xavier University - Louisiana 3211
Project reserve institutional engineering program
Period *Obligations*
01/01/88-01/31/88 FY88: \$176,190 TOTAL: \$176,190
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baker, G. W. HQ-U/Warren, L. 49-Engr, NEC
HQ-U/Margolis, M.

MAINE

NAG 2-511 Bowdoin College 3212
The effects of gravity on organizing patterns of cell determination in early amphibian embryos
Period *Obligations*
02/01/88-01/31/89 FY88: \$34,670 TOTAL: \$34,670
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, C. R. ARC/Ross, M. D. 51-Biological Sci

NAG 3-576 Colby College 3213
Leo high voltage solar array arcing response model
Period *Obligations*
10/25/84-03/30/89 FY88: \$27,354 TOTAL: \$101,563
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Metz, R. N. LERC/Snyder, D. B. 45-Elec Engr
LERC/Purvis, C. K.

NAGW 607 University of Maine - Orono 3214
Regulation of methylated gas emission from coastal and inland salt marshes
Period *Obligations*
02/01/84-06/30/88 FY88: TOTAL: \$118,287
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Margulis, L. HQ-EB/Averner, M. 99-Multi-Discip
Dacey, J. W. HQ-EB/Devincenzi, D. L.
Wakeman, S. G.

NAGW 1428 University of Maine - Orono 3215
Microbial controls of methane emissions and oxidation in wet land ecosystems
Period *Obligations*
07/01/88-06/30/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, G. M. HQ-EB/Averner, M. M. 54-Env Biology

NGT 00-050-098 University of Maine - Orono 3216
NASA graduate student researchers program
Period *Obligations*
09/01/86-08/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Comins, N. F. HQ-LE/Owens, F. C. 13-Physics

MARYLAND

NAG 5-499 Bowie State College 3217
Power spectral estimation algorithms for oceanographic applications
Period *Obligations*
02/01/85-05/31/89 FY88: \$30,052 TOTAL: \$188,018
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhatia, M. S. GSFC/Bonavito, N. L. 29-Math/Computer, NEC
GSFC/Hurley, E. J.

NAG 5-715 Bowie State College 3218
Launch vehicle ground truth ephemeris for micro-network applications
Period *Obligations*
09/15/85-04/30/89 FY88: \$21,162 TOTAL: \$200,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhatia, M. S. GSFC/Kork, J. 22-Computer Science

NAG 5-1054 Bowie State College 3219
Automated assembly in space
Period *Obligations*
06/15/88-06/14/89 FY88: \$74,735 TOTAL: \$74,735
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Srivastava, S. GSFC/Jones, G. K. 49-Engr, NEC
Dwivedi, S. N. GSFC/Travis, E. W.

NAS 5-30296 Bowie State College 3220
Communication cooperation of distributed intelligent systems study
Period *Obligations*
02/19/88-02/19/89 FY88: \$45,012 TOTAL: \$45,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Srivastava, S. GSFC/Truszowski, W. F. 22-Computer Science

NCA 5-108 Bowie State College 3221
Summer Institute in computer applications
Period *Obligations*
06/04/86-05/31/88 FY88: TOTAL: \$36,261
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kirksey, C. H. GSFC/Rodriguez, C. 22-Computer Science

NGR 21-027-010 Bowie State College 3222
Holographic gratings for spectrographic applications study of aberrations
Period *Obligations*
05/14/73-09/30/86 FY88: TOTAL: \$213,635
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhatia, M. S. GSFC/Caruso, A. J. 13-Physics
GSFC/Osantowski, J. F.

NGT 00-090-016 Bowie State College 3223
Summer institute on computer applicators
Period *Obligations*
05/15/88-09/14/88 FY88: \$68,635 TOTAL: \$68,635
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kirksey, C. H. HQ-U/Freeman, Y. B. 22-Computer Science
GSFC/Menchan, D.

NAS 5-29245 Capitol Institute of Technology 3224
Research and development of efficient baseband line driver codes
Period *Obligations*
11/13/85-12/13/86 FY88: TOTAL: \$33,117
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nolan, W. GSFC/Lopez, H. 45-Elec Engr
Conner, C.
Villiesse, T.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 1-211 Johns Hopkins University 3225
 Ultrasonic and optical evaluation of surgical implant materials and devices
Period *Obligations*
 09/01/81-08/31/86 FY88: TOTAL: \$129,119
Prin. Invest. NASA Tech. Officer CASE Category
 Green, R. E., Jr. LARC/Heyman, J. S. 47-Materials Engr
 Wagner, J. W. LARC/Crantrell, J. H., Jr.

NAG 1-399 Johns Hopkins University 3226
 Microstructures and properties of rapidly solidified alloys
Period *Obligations*
 08/10/83-08/31/87 FY88: TOTAL: \$187,510
Prin. Invest. NASA Tech. Officer CASE Category
 Shechtman, D. LARC/Royster, D. M. 47-Materials Engr
 Horowitz, E. LARC/Brewer, W. D.

NAG 1-484 Johns Hopkins University 3227
 A finite element analysis of J and R curves for metallic materials
Period *Obligations*
 05/30/84-09/30/86 FY88: TOTAL: \$47,289
Prin. Invest. NASA Tech. Officer CASE Category
 Douglas, A. S. LARC/Newman, J. C. 46-Mech Engr
 LARC/Eiber, W.

NAG 1-526 Johns Hopkins University 3228
 Closure measurements of short fatigue cracks
Period *Obligations*
 10/11/84-01/31/87 FY88: TOTAL: \$115,977
Prin. Invest. NASA Tech. Officer CASE Category
 Sharpe, W. N., Jr. LARC/Newman, J. C., Jr. 46-Mech Engr
 LARC/Phillips, E. P.

NAG 1-687 Johns Hopkins University 3229
 Volume change associated with discharge of lithium iodine batteries via holographic interferometric techniques
Period *Obligations*
 06/16/86-06/15/87 FY88: TOTAL: \$29,100
Prin. Invest. NASA Tech. Officer CASE Category
 Wagner, J. W. LARC/Heyman, J. S. 47-Materials Engr

NAG 2-356 Johns Hopkins University 3230
 A search for infrared molecular emissions from comet Halley using the Fourier transform spectrometer on the Kuiper Airborne Observatory
Period *Obligations*
 07/01/85-12/31/87 FY88: TOTAL: \$43,655
Prin. Invest. NASA Tech. Officer CASE Category
 Weaver, H. A., Jr. ARC/Haughney, L. C. 11-Astronomy

NAG 3-728 Johns Hopkins University 3231
 Acousto ultrasonic nondestructive evaluation of materials using laser beam generation and detection
Period *Obligations*
 06/01/86-05/29/89 FY88: \$109,999 TOTAL: \$249,999
Prin. Invest. NASA Tech. Officer CASE Category
 Green, R. F., Jr. LERC/Vary, A. 47-Materials Engr
 Palmer, C. H. LERC/Kautz, H. E.

NAG 5-32 Johns Hopkins University 3232
 Interpretation and delineation of the Earth's gravity field
Period *Obligations*
 04/01/80-05/31/89 FY88: \$57,745 TOTAL: \$417,514
Prin. Invest. NASA Tech. Officer CASE Category
 Marsh, B. D. GSFC/Welker, J. 32-Geological Sci
 Fisher, G. W.

NAG 5-327 Johns Hopkins University 3233
 Optical studies of potential spectroscopic instruments
Period *Obligations*
 06/01/83-02/28/89 FY88: \$34,000 TOTAL: \$116,000
Prin. Invest. NASA Tech. Officer CASE Category
 Moos, W. GSFC/Brien, J. J. 11-Astronomy
 GSFC/Leckrone, D. S.

NAG 5-356 Johns Hopkins University 3234
 Optical communication with laser diode arrays
Period *Obligations*
 08/01/83-01/31/89 FY88: \$89,876 TOTAL: \$339,300
Prin. Invest. NASA Tech. Officer CASE Category
 Davidson, F. M. GSFC/Abshire, J. B. 45-Elec Engr
 GSFC/Degnan, J. J.

NAG 5-619 Johns Hopkins University 3235
 Rocket and laboratory experiments in aeronomy and astronomy
Period *Obligations*
 03/01/83-02/28/89 FY88: \$615,000 TOTAL: \$3,438,000
Prin. Invest. NASA Tech. Officer CASE Category
 Feldman, P. D. GSFC/Early, L. J. 13-Physics
 Davidsen, A. F. GSFC/Pless, R. H.
 Fastie, W. G.

NAG 5-759 Johns Hopkins University 3236
 Broadband electrostatic noise and ion beam dynamics in the magnetotail
Period *Obligations*
 04/15/86-05/31/89 FY88: \$37,000 TOTAL: \$110,892
Prin. Invest. NASA Tech. Officer CASE Category
 Lui, A. T. GSFC/Wales, R. 13-Physics
 Mankofsky, A.

NAG 5-774 Johns Hopkins University 3237
 Dynamics of X-ray flares with hard X-ray imaging spectrometer images
Period *Obligations*
 04/01/86-04/30/87 FY88: TOTAL: \$34,581
Prin. Invest. NASA Tech. Officer CASE Category
 Rosner, R. GSFC/Bullock, S. D. 19-Phys Sci, NEC

NAG 5-782 Johns Hopkins University 3238
 Numerical studies of particle acceleration at oblique turbulent coronae shocks
Period *Obligations*
 05/15/86-04/14/87 FY88: TOTAL: \$32,500
Prin. Invest. NASA Tech. Officer CASE Category
 Decken, R. B. GSFC/Bullock, G. D. 19-Phys Sci, NEC

NAG 5-796 Johns Hopkins University 3239
 Mesospheric dynamics and chemistry from solar mesospheric experiments
Period *Obligations*
 07/01/86-12/31/88 FY88: TOTAL: \$43,881
Prin. Invest. NASA Tech. Officer CASE Category
 Strobel, D. F. GSFC/Schoeberl, M. R. 31-Atmos Sci

NAG 5-877 Johns Hopkins University 3240
 The anodic dissolution of cosmium in alkaline electrolyte
Period *Obligations*
 02/15/87-06/30/89 FY88: \$14,614 TOTAL: \$42,614
Prin. Invest. NASA Tech. Officer CASE Category
 Prentice, G. GSFC/Yi, T. Y. 43-Chem Engr

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 5-988	Johns Hopkins University	3241	NAGW 773	Johns Hopkins University	3249
Ultraviolet observations of astronomical phenomena			Energetic neutral atoms: Imaging the magnetospheric ring current		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/87-02/28/89	FY88:	TOTAL: \$47,600	06/01/85-07/31/88	FY88:	TOTAL: \$210,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blair, W. P.	GSFC/Kondo, Y.	11-Astronomy	Roelof, E. C.	HQ-EE/Theis, R. F.	13-Physics
Long, K. S.			HQ-EE/Eastman, T. E.		
NAG 8-676	Johns Hopkins University	3242	NAGW 820	Johns Hopkins University	3250
The mass and dynamics of clusters of galaxies			Prospecting for mantle plumes using satellite geoid and gravity data		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/89	FY88: \$19,487	TOTAL: \$46,425	11/01/85-04/30/88	FY88:	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kriss, G. A.	MSFC/Harper, B. A.	11-Astronomy	Olson, P. L.	HQ-E/Rosendhal, J. D.	32-Geological Sci
Ferguson, H. C.			HQ-EP/Konkel, R. M.		
NAG 8-677	Johns Hopkins University	3243	NAGW 826	Johns Hopkins University	3251
X ray IR study of supernova remnants with field center X ray morphologies			Middle atmosphere radiation and modeling		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/88	FY88:	TOTAL: \$24,000	12/01/85-09/30/88	FY88:	TOTAL: \$46,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Long, K. S.	MSFC/Harper, B. A.	11-Astronomy	Strobel, D. F.	HQ-EE/Smith, M. A.	31-Atmos Sci
White, R. L.			HQ-EE/Butler, D. M.		
NAG 9-217	Johns Hopkins University	3244	NAGW 865	Johns Hopkins University	3252
Structural analysis of the Archean slave province as a key to understanding Archean tectonic processes			Imaging neutral particle detector		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/87-04/01/89	FY88: \$20,500	TOTAL: \$45,000	01/01/86-12/31/88	FY88: \$100,000	TOTAL: \$299,463
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Depaor, D.	JSC/Phinney, W. C.	32-Geological Sci	Krimigas, S. M.	HQ-E/Alexander, J. K.	11-Astronomy
			HQ-EP/Konkel, R. M.		
NAGW 497	Johns Hopkins University	3245	NAGW 1017	Johns Hopkins University	3253
Study of magnetosphere structure and linear magnetosphere storm effects			The intermediate zone in active galactic nuclei		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/83-03/31/87	FY88:	TOTAL: \$163,000	01/01/87-12/31/88	FY88: \$40,000	TOTAL: \$80,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, D. J.	HQ-EE/Behannon, K. W.	13-Physics	Krolik, J. H.	HQ-EZ/Stachnik, R. V.	13-Physics
Spenser, T. W.	HQ-EE/Shawhan, S. D.		HQ-EZ/Boggess, N. W.		
Lyons, L. R.					
NAGW 522	Johns Hopkins University	3246	NAGW 1098	Johns Hopkins University	3254
Study of a solar magnetograph			Support of the 20th general assembly of the International Astronomical Union on Baltimore 1988		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/01/83-10/31/88	FY88: \$141,000	TOTAL: \$591,957	06/01/87-12/31/88	FY88: \$237,000	TOTAL: \$270,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rust, D. M.	HQ-EZ/Ahluwalia, H. S.	13-Physics	Davidson, A. F.	HQ-EZ/Peterson, L. E.	11-Astronomy
			HQ-EZ/Brinton, H. C.		
NAGW 574	Johns Hopkins University	3247	NAGW 1369	Johns Hopkins University	3255
Radar scattering of the ocean surface: A variational approach			International conference on auroral physics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/85-03/31/87	FY88:	TOTAL: \$240,000	05/01/88-04/30/89	FY88: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gray, E. P.	HQ-EE/Patzert, W. C.	33-Oceanography	Meng, C. I.	HQ-ES/Mellott, M. M.	13-Physics
Bird, J. F.	HQ-EE/Wilson, W. S.		HQ-ES/Parks, G. K.		
NAGW 648	Johns Hopkins University	3248	NAS 5-25358	Johns Hopkins University	3256
Planetary aeronomy			Grating facility use		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/84-08/31/89	FY88: \$80,924	TOTAL: \$394,896	10/01/78-12/31/88	FY88:	TOTAL: \$68,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strobel, D. F.	HQ-EL/Fox, K.	31-Atmos Sci	Fastie, W. G.	GSFC/Fowler, W. S.	13-Physics
	HQ-EL/Quaide, W. L.				

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAS 5-26848 Johns Hopkins University 3257
Multi-spectral auroral imaging device for OPEN (origin of plasmas in the Earth's neighborhood)
Period *Obligations*
12/20/82-12/30/88 FY88: \$100,000 TOTAL: \$318,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feldman, P. D. GSFC/Wainscott, F. 19-Phys Sci, NEC

NAS 5-27000 Johns Hopkins University 3258
Development phase of the Hopkins ultraviolet telescope (HUT)
Period *Obligations*
09/21/81-10/31/88 FY88: \$1,313,700 TOTAL: \$19,192,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davidsen, A. MSFC/Owens, J. H. 11-Astronomy

NAS 5-29259 Johns Hopkins University 3259
Space telescope guaranteed time observation program
Period *Obligations*
01/16/86-05/31/90 FY88: \$24,000 TOTAL: \$165,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fastie, W. G. GSFC/Kalinowski, J. K. 41-Aero Engr

NAS 5-30339 Johns Hopkins University 3260
Far ultraviolet spectroscopic Explorer lyman mission
Period *Obligations*
06/10/88-06/10/89 FY88: \$159,126 TOTAL: \$159,126
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moos, W. GSFC/O'Brien, J. 11-Astronomy

NAS 5-30403 Johns Hopkins University 3261
Stis CO investigator
Period *Obligations*
02/04/88-12/30/89 FY88: \$6,000 TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moos, W. GSFC/Vitablano, D. 41-Aero Engr

NAS 8-32903 Johns Hopkins University 3262
Scientific investigations in support of the space telescope project
Period *Obligations*
02/01/78-01/31/89 FY88: TOTAL: \$242,040
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fastie, W. G. MSFC/Taylor, W. E. 11-Astronomy

NASW 3691 Johns Hopkins University 3263
Space telescope historical project
Period *Obligations*
11/15/82-04/30/87 FY88: \$40,000 TOTAL: \$222,545
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kargon, R. H. HQ-EZ/Stencel, R. E. 11-Astronomy
HQ-EZ/Weiler, E. J.

NCA 2-171 Johns Hopkins University 3264
Visual attention and the perception of objects
Period *Obligations*
11/01/86-10/31/88 FY88: \$26,981 TOTAL: \$52,062
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yantis, S. ARC/Johnston, J. C. 61-Biol Aspects

NCC 2-555 Johns Hopkins University 3265
Fatigue pilot deviation and time of day
Period *Obligations*
07/15/88-01/14/89 FY88: \$11,376 TOTAL: \$11,376
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baker, S. P. ARC/Graeber, R. C. 99-Multi-Discip

NGT 00-050-033 Johns Hopkins University 3266
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 FY88: \$16,140 TOTAL: \$46,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davidsen, A. F. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-054 Johns Hopkins University 3267
NASA graduate student researchers program
Period *Obligations*
09/01/86-08/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Paor, D. D. HQ-LE/Owens, F. C. 55-Agriculture Sci

NGT 00-050-060 Johns Hopkins University 3268
NASA graduate student researchers program
Period *Obligations*
09/01/86-08/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moudrianakis, E. N. HQ-LE/Owens, F. C. 51-Biological Sci

NGT 21-001-802 Johns Hopkins University 3269
NASA graduate student researchers program
Period *Obligations*
09/01/84-08/31/87 FY88: TOTAL: \$51,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Green, R. HQ-LB/Owens, F. C. 47-Materials Engr

NSG 1442 Johns Hopkins University 3270
Intermittent/transient faults in computer based systems
Period *Obligations*
09/15/77-02/28/89 FY88: \$100,000 TOTAL: \$679,987
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Masson, G. E. LARC/Pitts, F. L. 45-Elec Engr
LARC/Carreno, V. A.

NSG 5393 Johns Hopkins University 3271
Studies of the ultraviolet spectra of astronomical sources
Period *Obligations*
07/01/79-09/30/89 FY88: \$157,600 TOTAL: \$774,852
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moos, H. W. GSFC/Kondo, Y. 11-Astronomy
Feldman, P. D.
Luhmann, J. G.

NSG 7055 Johns Hopkins University 3272
Satellite data analysis
Period *Obligations*
01/01/74-12/31/88 FY88: \$155,000 TOTAL: \$1,379,040
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Potemra, T. A. HQ-EE/Mellott, M. M. 13-Physics
HQ-EE/Eastman, T. E.

NAG 5-893 Loyola College 3273
Applying artificial intelligence techniques to the environment database
Period *Obligations*
04/01/87-03/31/88 FY88: TOTAL: \$26,090
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marshall, R. G. GSFC/Hoegy, W. R. 22-Computer Science
GSFC/Lauriente, M.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 5-735 Morgan State University 3274
A magnetomineral study of exsolution in titanomagnetics
Period Obligations
02/01/86-07/31/87 FY88: TOTAL: \$15,038
Prin. Invest. NASA Tech. Officer CASE Category
Isuk, E. E. GSFC/Wasilewski, P. J. 32-Geological Sci

NAG 5-733 Towson State University 3282
Holographic recording of cosmic ray tracks
Period Obligations
02/01/86-05/31/89 FY88: \$2,000 TOTAL: \$19,000
Prin. Invest. NASA Tech. Officer CASE Category
Huang, J. W. GSFC/Balasubrahmanya, V. K. 13-Physics
Loh, E. L. GSFC/Streitmatter, R. E.

NCA 5-104 Morgan State University 3275
Technology transfer
Period Obligations
06/06/85-09/30/88 FY88: \$19,679 TOTAL: \$60,845
Prin. Invest. NASA Tech. Officer CASE Category
Taylor, J. GSFC/Friedmen, D. S. 99-Multi-Discip

NAG 5-509 University of Maryland - Baltimore 3283
High resolution spectroscopy of carbon dioxide lineshapes
Period Obligations
03/01/85-06/30/89 FY88: TOTAL: \$87,000
Prin. Invest. NASA Tech. Officer CASE Category
Strow, L. L. GSFC/Gentry, B. 13-Physics
GSFC/Korb, C. L.

NCA 5-105 Morgan State University 3276
Engineering enrichment program
Period Obligations
06/26/85-05/31/89 FY88: \$31,901 TOTAL: \$183,901
Prin. Invest. NASA Tech. Officer CASE Category
De Loatch, E. M. GSFC/Menchan, D. 49-Engr, NEC

NAG 9-163 University of Maryland - Baltimore 3284
Impedance cardiography in critical illness and trauma
Period Obligations
08/01/86-11/01/87 FY88: TOTAL: \$99,145
Prin. Invest. NASA Tech. Officer CASE Category
Siegel, J. H. JSC/Reynolds, M. A. 56-Medical Sciences

NCA 5-109 Morgan State University 3277
Summer intern program in science and engineering
Period Obligations
06/11/86-05/31/88 FY88: TOTAL: \$112,000
Prin. Invest. NASA Tech. Officer CASE Category
Proctor, N. GSFC/Sharp, M. J. 49-Engr, NEC

NAG 9-249 University of Maryland - Baltimore 3285
Determination of the pharmacology of lidocaine tobramycin and theophylling in a zero G environment and on Earth
Period Obligations
08/01/87-03/01/89 FY88: \$90,000 TOTAL: \$178,640
Prin. Invest. NASA Tech. Officer CASE Category
Drusano, G. L. JSC/Kutyna, F. A. 56-Medical Sciences

NGT 00-090-005 Morgan State University 3278
NASA summer institute for SIMNET program
Period Obligations
05/15/87-12/15/88 FY88: TOTAL: \$121,200
Prin. Invest. NASA Tech. Officer CASE Category
DeLoatch, E. HQ-U/Warren, L. 49-Engr, NEC

NAGW 1020 University of Maryland - Baltimore 3286
Vibration and rotation lineshapes of atmospheric constituents
Period Obligations
03/01/87-02/28/89 FY88: \$45,000 TOTAL: \$95,000
Prin. Invest. NASA Tech. Officer CASE Category
Strow, L. L. HQ-EE/Kurylo, M. J. 31-Atmos Sci
HQ-EE/Margitan, J. J.

NGT 00-090-019 Morgan State University 3279
Summer graduate intern program
Period Obligations
05/16/88-10/16/88 FY88: \$71,162 TOTAL: \$71,162
Prin. Invest. NASA Tech. Officer CASE Category
Proctor, N. HQ-U/Freeman, Y. B. 49-Engr, NEC
GSFC/Menchan, D.

NAG 1-375 University of Maryland - College Park 3287
Gust response of articulated and hingeless rotors in hover and forward flight
Period Obligations
06/01/83-08/31/87 FY88: TOTAL: \$166,477
Prin. Invest. NASA Tech. Officer CASE Category
Chopra, I. LARC/Mantay, W. R. 41-Aero Engr

NSG 5074 Morgan State University 3280
Research calibration of photographic and spectrographic films
Period Obligations
10/01/75-04/30/89 FY88: \$336,247 TOTAL: \$1,470,027
Prin. Invest. NASA Tech. Officer CASE Category
Hammond, E. C., Jr. GSFC/Baker, G. R. 11-Astronomy
GSFC/Stober, A. K.

NAG 1-546 University of Maryland - College Park 3288
Studies of fundamental problems in hypersonic aerodynamics
Period Obligations
12/01/84-12/15/87 FY88: TOTAL: \$108,234
Prin. Invest. NASA Tech. Officer CASE Category
Anderson, J. D., Jr. LARC/Sawyer, W. C. 19-Phys Sci, NEC
Kothari, A. P. LARC/Johnston, P. J.

NAG 8-625 St John's College Main Campus 3281
X ray spectra of radio bright active galactic nuclei detected by HEAO A1 under the HEAO 2 guest investigator program
Period Obligations
03/03/87-12/31/88 FY88: TOTAL: \$17,930
Prin. Invest. NASA Tech. Officer CASE Category
Beall, J. H. MSFC/Potter, P. Y. 31-Atmos Sci

NAG 1-582 University of Maryland - College Park 3289
A study of data compression techniques with applications to image coding
Period Obligations
09/01/85-12/31/86 FY88: TOTAL: \$72,708
Prin. Invest. NASA Tech. Officer CASE Category
Farvardin, N. LARC/Fales, C. L. 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 1-620 University of Maryland - College Park 3290
Studies of high temperature nonequilibrium flow fields
Period Obligations
11/01/85-10/31/88 FY88: TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Anderson, J. D. LARC/Gnoffo, P. A. 41-Aero Engr
Kothari, A. P.

NAG 1-665 University of Maryland - College Park 3291
Innovative design of composite structures
Period Obligations
05/01/86-10/31/89 FY88: \$37,781 TOTAL: \$112,398
Prin. Invest. NASA Tech. Officer CASE Category
Hyer, M. W. LARC/Nemeth, M. P. 41-Aero Engr

NAG 1-681 University of Maryland - College Park 3292
Studies in general aviation aerodynamics
Period Obligations
07/01/86-12/31/88 FY88: TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Winkelmann, A. E. LARC/Dicarlo, D. J. 41-Aero Engr
LARC/Jordan, F. L., Jr.

NAG 1-739 University of Maryland - College Park 3293
Aeroelastic optimization of a helicopter rotor
Period Obligations
02/01/87-01/31/89 FY88: \$57,001 TOTAL: \$110,365
Prin. Invest. NASA Tech. Officer CASE Category
Chopra, I. LARC/Walsh, J. L. 41-Aero Engr
LARC/Noonan, K. W.

NAG 1-853 University of Maryland - College Park 3294
Aeroelastic stability analysis of variable speed composite gimballed rotor
Period Obligations
02/05/88-02/04/89 FY88: \$49,878 TOTAL: \$49,878
Prin. Invest. NASA Tech. Officer CASE Category
Chodra, I. LARC/Nixon, M. W. 41-Aero Engr
LARC/Kvaternik, R. C.

NAG 1-885 University of Maryland - College Park 3295
Dynamic planning with connectionist models
Period Obligations
06/01/88-08/31/89 FY88: \$51,353 TOTAL: \$51,353
Prin. Invest. NASA Tech. Officer CASE Category
Reggia, J. A. LARC/Sliwa, N. E. 22-Computer Science

NAG 2-270 University of Maryland - College Park 3296
Properties of large nearly perfect crystals at very low temperatures
Period Obligations
01/01/84-10/31/88 FY88: \$40,000 TOTAL: \$160,000
Prin. Invest. NASA Tech. Officer CASE Category
Richard, J. P. ARC/Kittel, P. 13-Physics
Weber, J.
Nelson, R. A.

NAG 2-409 University of Maryland - College Park 3297
Aeroelastic stability analysis of berringleless rotors in forward flight
Period Obligations
06/01/86-08/31/88 FY88: \$80,000 TOTAL: \$176,800
Prin. Invest. NASA Tech. Officer CASE Category
Chopra, I. ARC/Graham, T. A. 41-Aero Engr
ARC/Peterson, R. L.

NAG 2-529 University of Maryland - College Park 3298
Hypersonic nonequilibrium chemically reacting separated flows
Period Obligations
07/01/88-06/30/89 FY88: \$75,111 TOTAL: \$75,111
Prin. Invest. NASA Tech. Officer CASE Category
Anderson, J. D. ARC/Deiwert, G. S. 41-Aero Engr

NAG 3-849 University of Maryland - College Park 3299
Project zena critical fluid light scattering experiment
Period Obligations
12/15/87-11/14/88 FY88: \$717,982 TOTAL: \$717,982
Prin. Invest. NASA Tech. Officer CASE Category
Gammon, R. W. LERC/Lauver, R. W. 13-Physics

NAG 5-169 University of Maryland - College Park 3300
Measurement of interstellar helium impinging on the Earth
Period Obligations
04/15/81-10/31/86 FY88: TOTAL: \$82,526
Prin. Invest. NASA Tech. Officer CASE Category
Moore, J. GSFC/Early, L. J. 13-Physics
Opal, C. B. GSFC/Pless, R. H.
Meir, R. R.

NAG 5-203 University of Maryland - College Park 3301
Satellite sensing of air pollution and ground signatures
Period Obligations
09/01/81-02/28/89 FY88: \$40,300 TOTAL: \$621,883
Prin. Invest. NASA Tech. Officer CASE Category
Pinker, R. T. GSFC/Fraser, R. S. 31-Atmos Sci
Kaufman, Y. J. GSFC/Tucker, C. J.
Ferrare, R. A.

NAG 5-216 University of Maryland - College Park 3302
Thermodynamic and spectroscopic studies relevant to a Jovian satellite
Period Obligations
01/15/82-04/30/89 FY88: \$36,897 TOTAL: \$165,254
Prin. Invest. NASA Tech. Officer CASE Category
Khanna, R. K. GSFC/Pearl, J. C. 11-Astronomy

NAG 5-245 University of Maryland - College Park 3303
Planetary studies through interpretation of satellite data
Period Obligations
06/15/82-12/31/88 FY88: \$351,352 TOTAL: \$1,041,189
Prin. Invest. NASA Tech. Officer CASE Category
Bell, R. A. GSFC/Freg, H. 32-Geological Sci
Troscio, J. D.

NAG 5-252 University of Maryland - College Park 3304
Satellite observations of distant dusty comets
Period Obligations
03/01/87-07/31/89 FY88: \$33,400 TOTAL: \$124,900
Prin. Invest. NASA Tech. Officer CASE Category
A'hearn, M. F. GSFC/Kondo, Y. 11-Astronomy
McFadden, L. A.
Schleicher, D. G.

NAG 5-263 University of Maryland - College Park 3305
Investigation of radio frequency high waveguide laser
Period Obligations
08/01/82-04/30/88 FY88: TOTAL: \$350,985
Prin. Invest. NASA Tech. Officer CASE Category
Hochuli, U. GSFC/Degnan, J. J. 49-Engr, NEC
GSFC/Kostiuk, T.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 5-323 University of Maryland - College Park 3306
Research relative to laser wavemeter-spectrometer techniques
Period *Obligations*
05/15/83-02/28/87 FY88: TOTAL: \$73,369
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilkerson, T. D. GSFC/Dombrowski, M. 49-Engr, NEC
Cotnoir, L. J. GSFC/Schwemmer, G. K.

NAG 5-512 University of Maryland - College Park 3314
Hydrologic component of the pilot load data system
Period *Obligations*
03/01/85-07/31/87 FY88: TOTAL: \$87,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ragan, R. M. GSFC/Price, R. D. 29-Math/Computer, NEC

NAG 5-368 University of Maryland - College Park 3307
Research in requirements and software design
Period *Obligations*
09/01/83-09/30/87 FY88: TOTAL: \$352,589
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Basili, V. R. GSFC/McGarry, F. E. 22-Computer Science
Zelkowitz, M. K. GSFC/Tasaki, K. K.

NAG 5-542 University of Maryland - College Park 3315
Research regarding the feasibility of estimating rainfall from space
Period *Obligations*
05/15/85-08/14/87 FY88: TOTAL: \$79,818
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thompson, O. E. GSFC/Meneghini, R. 31-Atmos Sci
Atlas, D.

NAG 5-396 University of Maryland - College Park 3308
System characterization of a magnetically suspended flywheel
Period *Obligations*
02/15/84-07/31/90 FY88: TOTAL: \$573,859
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kirk, J. A. GSFC/Rodriguez, G. E. 46-Mech Engr
Whittaker, L. M. GSFC/Kichak, R. A.

NAG 5-579 University of Maryland - College Park 3316
Analysis of the results of the ion composition instrument
Period *Obligations*
07/01/85-10/14/88 FY88: \$59,319 TOTAL: \$284,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coplan, M. A. GSFC/Ogilvie, K. W. 13-Physics

NAG 5-399 University of Maryland - College Park 3309
Investigation of computer aided techniques for mapping large-scale and small-scale vegetation boundaries
Period *Obligations*
04/01/84-06/30/87 FY88: TOTAL: \$239,753
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Justice, C. O. GSFC/Tucker, C. J. 31-Atmos Sci
Ragan, R. M.

NAG 5-705 University of Maryland - College Park 3317
Research relative to the IMP ion and election experiment data
Period *Obligations*
10/01/85-12/31/88 FY88: \$73,650 TOTAL: \$216,650
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/Wales, R. O. 11-Astronomy
Galvin, A. B.
Mason, G. M.

NAG 5-422 University of Maryland - College Park 3310
Design study for a high sensitivity electron spectrometer
Period *Obligations*
07/01/84-04/30/89 FY88: \$25,000 TOTAL: \$125,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coplan, M. A. GSFC/Hoffman, R. A. 13-Physics
Moore, J. H.

NAG 5-716 University of Maryland - College Park 3318
Analysis of data from the charge-energy-mass spectrometer
Period *Obligations*
10/01/85-12/31/88 FY88: \$317,000 TOTAL: \$936,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckner, S. GSFC/Curtis, S. 13-Physics
Hamilton, D.
Ipaich, F.

NAG 5-454 University of Maryland - College Park 3311
Study of selected radiations at high altitudes above the auroral
Period *Obligations*
07/15/84-05/31/89 FY88: TOTAL: \$75,489
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, C. S. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAG 5-723 University of Maryland - College Park 3319
Studies of energetic particles in the solar terrestrial environment
Period *Obligations*
12/01/85-12/31/88 FY88: \$15,000 TOTAL: \$172,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bell, R. GSFC/Jones, F. C. 11-Astronomy

NAG 5-492 University of Maryland - College Park 3312
Formulation of a biospheres model for use within general circulation models
Period *Obligations*
02/01/85-06/14/88 FY88: TOTAL: \$309,421
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shukla, J. GSFC/Camillo, P. J. 31-Atmos Sci
Sellers, P.

NAG 5-726 University of Maryland - College Park 3320
Application of total ozone data to satellite soundings
Period *Obligations*
01/01/86-06/30/87 FY88: TOTAL: \$96,678
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thompson, O. E. GSFC/Reuter, D. 31-Atmos Sci
Munteanu, M. J.

NAG 5-511 University of Maryland - College Park 3313
Very large array and westerbrook observations in support of Solar Maximum Mission experiments
Period *Obligations*
03/01/85-02/28/87 FY88: TOTAL: \$73,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kundu, M. R. GSFC/Bullock, G. D. 11-Astronomy
Schmahl, E. J.

NAG 5-728 University of Maryland - College Park 3321
Nuclear and ionic charge distribution experiments
Period *Obligations*
02/01/86-12/31/88 FY88: \$122,000 TOTAL: \$421,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/Wales, R. O. 11-Astronomy
Spavick, F. M.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 5-730 University of Maryland - College Park 3322
Satellite temperature sounding for regional weather prediction models
Period *Obligations*
01/15/86-02/14/89 FY88: \$51,000 TOTAL: \$206,174
Prin. Invest. NASA Tech. Officer CASE Category
Thompson, O. E. GSFC/Susskind, J. 31-Atmos Sci
Dazlich, D. A.

NAG 5-731 University of Maryland - College Park 3323
Measuring mean tropospheric winds by means of an aerosol tracking
spaceborne lidar system
Period *Obligations*
01/08/86-02/07/89 FY88: \$95,544 TOTAL: \$261,057
Prin. Invest. NASA Tech. Officer CASE Category
Pinker, R. T. GSFC/Spinhorne, J. D. 31-Atmos Sci
Boers, R. GSFC/Melfi, S. H.

NAG 5-776 University of Maryland - College Park 3324
Designing a new processor chips for the massively parallel processor
Period *Obligations*
05/15/86-08/14/88 FY88: \$19,739 TOTAL: \$97,972
Prin. Invest. NASA Tech. Officer CASE Category
Ja Ja, J. GSFC/Dorband, J. E. 45-Elec Engr
GSFC/Fischer, J. R.

NAG 5-783 University of Maryland - College Park 3325
Parameterization of cloudiness in climate models
Period *Obligations*
05/01/86-09/30/88 FY88: \$45,000 TOTAL: \$185,000
Prin. Invest. NASA Tech. Officer CASE Category
Baer, F. GSFC/Thiele, O. W. 31-Atmos Sci
Harshvardhan

NAG 5-812 University of Maryland - College Park 3326
Coupling of satellite surface climatology parameters with ground truth
Period *Obligations*
10/01/86-08/31/88 FY88: TOTAL: \$61,500
Prin. Invest. NASA Tech. Officer CASE Category
Pinker, R. T. GSFC/Oseroff, H. 19-Phys Sci, NEC

NAG 5-822 University of Maryland - College Park 3327
The dynamics of the thermosphere and space station data systems
Period *Obligations*
07/15/86-09/30/88 FY88: \$130,319 TOTAL: \$306,342
Prin. Invest. NASA Tech. Officer CASE Category
Spencer, N. GSFC/Hoegy, W. R. 31-Atmos Sci

NAG 5-866 University of Maryland - College Park 3328
Calculation of the global hydrologic cycle through repeated insertions of
available satellite and surface observations
Period *Obligations*
01/01/87-01/31/89 FY88: \$69,669 TOTAL: \$129,029
Prin. Invest. NASA Tech. Officer CASE Category
Baer, F. E. GSFC/Sud, Y. 31-Atmos Sci
Mintz, Y.

NAG 5-867 University of Maryland - College Park 3329
Remote sensing of the atmosphere two level analysis the Africa
drought
Period *Obligations*
01/01/87-01/31/89 FY88: \$308,203 TOTAL: \$606,361
Prin. Invest. NASA Tech. Officer CASE Category
Baer, F. E. GSFC/Peslen, C. A. 31-Atmos Sci
Mintz, Y.

NAG 5-892 University of Maryland - College Park 3330
Modeling of vegetation atmosphere interactions for the first ISLSCP field
experiment
Period *Obligations*
04/15/87-03/14/89 FY88: \$73,558 TOTAL: \$122,444
Prin. Invest. NASA Tech. Officer CASE Category
Sellers, P. J. GSFC/Camillo, P. 39-Env Sci, NEC
Paw, K. T. GSFC/Hall, F.

NAG 5-895 University of Maryland - College Park 3331
The efficiency of using human myoelectric signals to control the limbs
of robots in space
Period *Obligations*
04/15/87-04/14/88 FY88: TOTAL: \$19,865
Prin. Invest. NASA Tech. Officer CASE Category
Clark, J. E. GSFC/Burt, I. J. 45-Elec Engr
Phillips, S. J.

NAG 5-903 University of Maryland - College Park 3332
Measurement of evapotranspiration with combined multispectral solar
reflective and thermal infrared radiance observations
Period *Obligations*
05/01/87-01/31/89 FY88: \$52,646 TOTAL: \$101,662
Prin. Invest. NASA Tech. Officer CASE Category
Goward, S. N. GSFC/Choudhury, B. 39-Env Sci, NEC
Hope, A. GSFC/Hall, F.

NAG 5-907 University of Maryland - College Park 3333
Canopy photosynthesis and resistance measurements for the first ISLSCP
field experiment
Period *Obligations*
05/01/87-05/31/89 FY88: \$12,382 TOTAL: \$26,755
Prin. Invest. NASA Tech. Officer CASE Category
Sellers, P. GSFC/Levine, E. 39-Env Sci, NEC
GSFC/Hall, F.

NAG 5-914 University of Maryland - College Park 3334
Mesoscale surface radiation budgets from satellite observations derivation
and validation
Period *Obligations*
07/01/87-06/30/89 FY88: \$80,000 TOTAL: \$124,239
Prin. Invest. NASA Tech. Officer CASE Category
Pinker, R. T. GSFC/Chou, M. D. 31-Atmos Sci

NAG 5-923 University of Maryland - College Park 3335
Integrated transmission of mixed communication traffic types with different
bandwidth requirements
Period *Obligations*
06/01/87-05/31/89 FY88: \$55,809 TOTAL: \$107,719
Prin. Invest. NASA Tech. Officer CASE Category
Narayan, P. GSFC/Morakis, J. C. 49-Engr, NEC
Lambadaris, I. GSFC/Miller, W. H.

NAG 5-924 University of Maryland - College Park 3336
Feasibility of using Auger spectroscopy for remote sensing of planetary
surfaces
Period *Obligations*
06/15/87-12/14/88 FY88: TOTAL: \$12,019
Prin. Invest. NASA Tech. Officer CASE Category
Adler, I. GSFC/Tanner, R. 19-Phys Sci, NEC
Moor, J.
Coplan, M.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 5-942 University of Maryland - College Park 3337
Monitoring the grasslands of sub Soharan Africa
Period *Obligations*
07/01/87-09/30/89 FY88: \$75,518 TOTAL: \$120,658
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Justice, C. O. GSFC/Tucker, C. J. 39-Env Sci, NEC
Goward, S. N. GSFC/Holben, B. N.

NAG 5-1047 University of Maryland - College Park 3345
Sensory interaction supper control algorithm
Period *Obligations*
05/15/88-05/14/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baras, J. S. GSFC/Vranish, J. M. 22-Computer Science
Salter, C.

NAG 5-950 University of Maryland - College Park 3338
Numerical studies of shock acceleration in solar flores
Period *Obligations*
08/01/87-07/31/88 FY88: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodrich, C. C. GSFC/Bullock, A. D. 19-Phys Sci, NEC
Cargill, P. J. GSFC/Gurman, J. B.

NAG 5-1079 University of Maryland - College Park 3346
Anisotropic continuum emission in Leyferts
Period *Obligations*
10/01/88-09/30/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, A. GSFC/Kondo, Y. 11-Astronomy

NAG 5-955 University of Maryland - College Park 3339
Space station systems engineering
Period *Obligations*
08/01/87-08/31/88 FY88: TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anand, D. K. GSFC/Ford, F. E. 49-Engr, NEC
Kirk, J. A. GSFC/Sabelhaus, P. A.

NAG 5-1094 University of Maryland - College Park 3347
Structure seasonal cycle nature general circulation models
Period *Obligations*
10/01/88-03/31/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Straus, D. GSFC/Suarez, M. 31-Atmos Sci
Shukla, J.

NAG 5-968 University of Maryland - College Park 3340
Ultramafic lithologies province boundaries and Archean crustal evolution
Period *Obligations*
07/15/87-08/14/89 FY88: \$22,369 TOTAL: \$62,801
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McLellan, E. GSFC/Bell, R. 32-Geological Sci
Siegrist, H. G. GSFC/Heirtzler, J. R.

NAG 8-486 University of Maryland - College Park 3348
Spectrophotometry of comet Halley using Astro-1 payload
Period *Obligations*
07/01/84-09/30/86 FY88: TOTAL: \$97,797
Prin. Invest. *NASA Tech. Officer* *CASE Category*
A'hearn, M. F. MSFC/Owens, J. H. 11-Astronomy

NAG 5-969 University of Maryland - College Park 3341
Very large array and westerbrook observations in support of solar maximum mission experiment
Period *Obligations*
08/15/87-08/14/89 FY88: \$49,050 TOTAL: \$100,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kundu, M. R. GSFC/Bullock, A. D. 19-Phys Sci, NEC
GSFC/Gurman, J. B.

NAG 8-529 University of Maryland - College Park 3349
Studies of radio jets and the narrow line regions of active galaxies with the AXAF
Period *Obligations*
05/01/85-01/12/89 FY88: \$25,800 TOTAL: \$89,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, A. S. MSFC/Dailey, C. C. 11-Astronomy

NAG 5-1002 University of Maryland - College Park 3342
Fleasibility study of a 64 channel multiplexer
Period *Obligations*
09/15/87-09/14/88 FY88: TOTAL: \$8,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zaki, K. A. GSFC/Glenar, D. A. 45-Elec Engr
GSFC/Kostiuk, T.

NAG 8-591 University of Maryland - College Park 3350
Low energy X ray absorption in active galaxies
Period *Obligations*
08/01/86-07/31/88 FY88: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, A. S. MSFC/Potter, P. 11-Astronomy

NAG 5-1019 University of Maryland - College Park 3343
Dynamic formulation efficient digital simulation telerobotic manipulation
Period *Obligations*
10/15/87-10/14/88 FY88: \$49,580 TOTAL: \$49,580
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chen, J. GSFC/Celmer, J. J. 21-Mathematics

NAGW 33 University of Maryland - College Park 3351
A program to develop remote sensing excellence
Period *Obligations*
03/01/80-08/31/89 FY88: \$250,000 TOTAL: \$1,250,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ragan, R. M. HQ-ET/Tuyahov, A. J. 39-Env Sci, NEC

NAG 5-1039 University of Maryland - College Park 3344
Cooperative research in infrared astronomy
Period *Obligations*
04/15/88-11/30/88 FY88: \$97,281 TOTAL: \$97,281
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trasco, J. D. GSFC/Dwek, E. 11-Astronomy
Bell, R. A.

NAGW 81 University of Maryland - College Park 3352
A study of discontinuities and radiation processes in solar terrestrial plasmas
Period *Obligations*
06/01/80-10/31/88 FY88: \$75,000 TOTAL: \$2,072,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Papadopoulos, K. HQ-ES/Mellot, M. M. 39-Env Sci, NEC
Wu, C. S. HQ-ES/Eastman, T. E.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAGW 101 University of Maryland - College Park 3353
Thermal and suprathermal ion composition studies close to the Sun
Period Obligations
10/01/80-01/31/88 FY88: \$142,400 TOTAL: \$983,070
Prin. Invest. NASA Tech. Officer CASE Category
Gloeckler, G. HQ-EZ/Ahluwalia, H. S. 13-Physics

NAGW 971 University of Maryland - College Park 3361
Plasma processes in the solar terrestrial environment
Period Obligations
09/15/86-03/14/89 FY88: \$215,000 TOTAL: \$539,000
Prin. Invest. NASA Tech. Officer CASE Category
Wu, C. S. HQ-EE/Butler, D. M. 13-Physics
GSFC/Curtis, S. A.

NAGW 557 University of Maryland - College Park 3354
United States and India cooperative research on monsoons
Period Obligations
12/19/83-03/18/89 FY88: \$200,000 TOTAL: \$1,025,000
Prin. Invest. NASA Tech. Officer CASE Category
Shukla, J. HQ-EE/Schiffer, R. A. 31-Atmos Sci
HQ-EE/Theon, J. S.

NAGW 1003 University of Maryland - College Park 3362
Monocrystalline silicon gradiometer for gravity experiments in space
Period Obligations
01/01/87-12/31/88 FY88: \$75,000 TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Richard, J. P. HQ-E/Alexander, J. K. 13-Physics
HQ-EP/Konkel, R. M.

NAGW 558 University of Maryland - College Park 3355
U.S. India cooperative research on monsoon variability
Period Obligations
12/19/83-03/18/89 FY88: \$136,560 TOTAL: \$612,495
Prin. Invest. NASA Tech. Officer CASE Category
Shukla, J. HQ-EE/Curran, R. J. 31-Atmos Sci
HQ-EE/Theon, J. S.

NAGW 1004 University of Maryland - College Park 3363
Synthetic photometry for the Hubble space telescope
Period Obligations
12/01/86-09/30/88 FY88: \$37,000 TOTAL: \$74,000
Prin. Invest. NASA Tech. Officer CASE Category
Bell, R. A. HQ-EZ/Stachnik, R. V. 11-Astronomy
HQ-EZ/Bogges, N. W.

NAGW 562 University of Maryland - College Park 3356
Asteroid composition and meteorite origin as determined from reflectance spectroscopy
Period Obligations
02/15/84-12/14/87 FY88: TOTAL: \$102,000
Prin. Invest. NASA Tech. Officer CASE Category
McFadden, L. A. HQ-EL/Scott, D. H. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1037 University of Maryland - College Park 3364
Plasma processes in the comet Halley
Period Obligations
03/01/87-02/28/89 FY88: TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Papadopoulos, D. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 637 University of Maryland - College Park 3357
Analysis of Voyager infrared data on Titan
Period Obligations
07/15/84-12/31/88 FY88: \$40,554 TOTAL: \$183,184
Prin. Invest. NASA Tech. Officer CASE Category
Khanna, R. K. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1142 University of Maryland - College Park 3365
Analysis of the Boreal forest tunara ecotone: A test of aviris capabilities in the eastern Canadian subarctic
Period Obligations
06/01/87-12/31/88 FY88: \$21,550 TOTAL: \$63,818
Prin. Invest. NASA Tech. Officer CASE Category
Goward, S. N. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
Petzold, D. E. HQ-EE/Ruzek, M.

NAGW 824 University of Maryland - College Park 3358
Planet crossing asteroids-interrelationships within the solar
Period Obligations
11/01/85-12/31/87 FY88: TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
McFadden, L. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAGW 1152 University of Maryland - College Park 3366
Toward new theories in macroscale bioclimatology a study in satellite bioclimatology
Period Obligations
08/01/87-12/31/88 FY88: \$88,369 TOTAL: \$154,369
Prin. Invest. NASA Tech. Officer CASE Category
Goward, S. N. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
HQ-EE/Ruzek, M.

NAGW 902 University of Maryland - College Park 3359
Theoretical spectroscopy of comets
Period Obligations
06/01/86-09/30/87 FY88: \$33,000 TOTAL: \$137,500
Prin. Invest. NASA Tech. Officer CASE Category
A'hearn, M. F. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAGW 1166 University of Maryland - College Park 3367
Integration of space and in situ observations to study atmospheres ocean land processes
Period Obligations
09/01/87-08/31/88 FY88: \$209,849 TOTAL: \$209,849
Prin. Invest. NASA Tech. Officer CASE Category
Shukla, J. HQ-EE/Curran, R. J. 31-Atmos Sci
Kinter, J. L. HQ-EE/Theon, J. S.

NAGW 954 University of Maryland - College Park 3360
Chemical evolution and prebiological organization
Period Obligations
07/01/86-09/30/87 FY88: TOTAL: \$40,224
Prin. Invest. NASA Tech. Officer CASE Category
Ponnampuruma, C. HQ-EB/Devincenzi, D. L. 12-Chemistry
HQ-EB/Averner, M.

NAGW 1269 University of Maryland - College Park 3368
Atomosphere biosphere system
Period Obligations
11/01/87-10/31/88 FY88: \$159,999 TOTAL: \$159,999
Prin. Invest. NASA Tech. Officer CASE Category
Sellers, P. HQ-EE/Ruzek, M. 39-Env Sci, NEC
Shukla, J. HQ-EE/Murphy, R.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAGW 1326 University of Maryland - College Park 3369
Absolute absorption cross sections in the 1600 2800 a region
Period *Obligations*
03/01/88-02/28/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ginter, M. L. HQ-EE/Tilford, S. G. 19-Phys Sci, NEC
HQ-EE/Estes, J. E.

NAGW 1346 University of Maryland - College Park 3370
Three dimensional considerations of solar loop equilibria and their stability
Period *Obligations*
06/01/88-05/31/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Finn, J. M. HQ-ES/Ahluwalia, H. S. 13-Physics
Hasam, A. B.

NAS 5-26856 University of Maryland - College Park 3371
Definition studies for the solar wind and superthermal ion composition studies
Period *Obligations*
05/03/82-12/31/88 FY88: \$559,297 TOTAL: \$1,144,783
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/O'Brien, J. J. 13-Physics

NAS 5-26870 University of Maryland - College Park 3372
Modeling and theoretical studies in support of origin of plasmas in the Earth's neighborhood (OPEN)
Period *Obligations*
04/23/82-08/14/88 FY88: TOTAL: \$52,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Papadopoulos, K. GSFC/O'Brien, J. J. 13-Physics

NAS 5-29163 University of Maryland - College Park 3373
Cooperative visitors program
Period *Obligations*
05/21/85-07/27/91 FY88: \$95,996 TOTAL: \$428,542
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baer, F. GSFC/Kreins, E. R. 31-Atmos Sci

NAS 5-29265 University of Maryland - College Park 3374
Self-describing/self-documenting data model research
Period *Obligations*
11/27/85-11/27/87 FY88: TOTAL: \$186,558
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roussopoulos, N. GSFC/Truskowski, W. F. 22-Computer Science

NAS 5-30108 University of Maryland - College Park 3375
Support for the summer institute for atmospheric studies
Period *Obligations*
05/07/87-07/07/88 FY88: \$20,630 TOTAL: \$89,793
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baer, F. GSFC/Kreins, E. 31-Atmos Sci

NAS 8-36165 University of Maryland - College Park 3376
Development of a three axis superconducting gravity gradiometer for spacelaunch gravity survey
Period *Obligations*
06/28/85-12/27/88 FY88: \$325,000 TOTAL: \$875,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Paik, H. J. MSFC/Morgan, S. H. 13-Physics
MSFC/Strauss, E. M.

NASW 4193 University of Maryland - College Park 3377
Writing a history of GSFC
Period *Obligations*
09/30/86-09/29/89 FY88: \$53,320 TOTAL: \$141,061
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Friedel, R. D. HQ-LB/Fries, S. D. 73-History
Thackray, A.
Brush, S.

NASW 4198 University of Maryland - College Park 3378
Auge spectrometer development for remote planetary analysis
Period *Obligations*
08/01/86-09/14/87 FY88: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adler, J. HQ-EL/Gold, R. 31-Atmos Sci

NASW 4221 University of Maryland - College Park 3379
Composition requirements of magnetospheric and cometary atoms and molecular ions and neutrals
Period *Obligations*
02/01/87-11/30/88 FY88: TOTAL: \$200,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hamilton, D. C. HQ-EL/Evans, L. G. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NCA 2-309 University of Maryland - College Park 3380
Rotorcraft flight control system design methodologies
Period *Obligations*
04/01/88-03/31/90 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fan, M. ARC/Tischler, M. 29-Math/Computer, NEC
Tiits, A.
Barlow, J.

NCA 2-310 University of Maryland - College Park 3381
Simulation modelling for combat rotorcraft flight control system design
Period *Obligations*
04/01/88-03/31/90 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Celi, R. ARC/Tischler, M. B. 29-Math/Computer, NEC
Barlow, J. B.

NCA 5-110 University of Maryland - College Park 3382
Instructional use of pilot climate data system
Period *Obligations*
07/01/87-11/30/88 FY88: \$17 TOTAL: \$58,017
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vernekar, A. D. GSFC/Reph, M. G. 29-Math/Computer, NEC

NCC 1-25 University of Maryland - College Park 3383
Investigation of near-infrared differential absorption lidar (DIAL) techniques for airborne/spaceborne water vapor profiling
Period *Obligations*
08/01/79-07/31/88 FY88: TOTAL: \$403,297
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilkerson, T. D. LARC/Browell, E. V. 31-Atmos Sci
Singh, H. LARC/Carter, A. F.

NCC 2-474 University of Maryland - College Park 3384
Structuring and searching online knowledge the information expert system
Period *Obligations*
02/01/87-09/30/88 FY88: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shneiderman, B. ARC/Lum, H. 22-Computer Science

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NCC 2-519 University of Maryland - College Park 3385
Architectural studies of autonomous systems
Period *Obligations*
10/01/87-03/31/89 FY88: \$50,341 TOTAL: \$50,341
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Agrawala, A. K. ARC/Lum, H. 22-Computer Science
Larsen, R. L.

NCC 2-560 University of Maryland - College Park 3386
NASA research program in parallel processing
Period *Obligations*
09/01/88-08/31/89 FY88: \$534,989 TOTAL: \$534,989
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davis, L. S. ARC/Lum, H. 22-Computer Science
Rosenfeld, A. ARC/McKellar, D.

NCC 5-26 University of Maryland - College Park 3387
Analysis of terrestrial conditions and dynamics
Period *Obligations*
12/01/82-06/30/89 FY88: \$111,936 TOTAL: \$695,210
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goward, S. N. GSFC/Middleton, E. M. 32-Geological Sci
Walthall, C. GSFC/Tucker, C. J.

NCC 5-35 University of Maryland - College Park 3388
Atmospheric physics and spacecraft applications studies
Period *Obligations*
11/15/85-12/14/88 FY88: \$605,038 TOTAL: \$1,411,895
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greenwood, S. W. GSFC/Hoegy, W. R. 19-Phys Sci, NEC
GSFC/Herrero, F.

NCC 5-39 University of Maryland - College Park 3389
Research relative to atmospheric sciences's summer institute
Period *Obligations*
07/15/88-07/14/89 FY88: \$45,698 TOTAL: \$45,698
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baer, F. GSFC/Kreins, E. R. 31-Atmos Sci

NGL 21-002-005 University of Maryland - College Park 3390
Theoretical research on dynamics of astrophysical plasmas including studies of structure of plasma shock waves in solar corona and their possible radio emission
Period *Obligations*
02/01/62-11/30/88 FY88: \$150,000 TOTAL: \$2,085,493
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, C. S. HQ-ES/Mellott, M. M. 19-Phys Sci, NEC
HQ-EE/Eastman, T. E.

NGL 21-002-033 University of Maryland - College Park 3391
Theoretical and experimental studies in space sciences, including consideration of rocket probe and satellites techniques
Period *Obligations*
06/02/64-04/14/89 FY88: \$226,159 TOTAL: \$4,810,828
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trasco, J. GSFC/Kostiuk, T. 31-Atmos Sci
Bell, R.

NGR 21-002-066 University of Maryland - College Park 3392
A study of primary cosmic ray electrons, utilizing balloon-borne experiments
Period *Obligations*
11/19/65-03/31/89 FY88: \$30,240 TOTAL: \$1,065,241
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Earl, J. A. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-ES/Jones, W. V.

NGR 21-002-199 University of Maryland - College Park 3393
Research in solar radio astronomy at short wavelengths
Period *Obligations*
04/11/69-10/31/88 FY88: \$65,000 TOTAL: \$976,656
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kundu, M. R. HQ-EZ/Ahluwalia, H. S. 13-Physics

NGR 21-002-224 University of Maryland - College Park 3394
Research on the measurement of the charge and isotopic composition on the primary cosmic rays
Period *Obligations*
07/31/69-10/31/88 FY88: \$75,000 TOTAL: \$1,031,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mason, G. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-EZ/Kaluzienski, L. J.

NGR 21-002-316 University of Maryland - College Park 3395
Research program in charged particle detector technology
Period *Obligations*
07/01/71-06/14/89 FY88: \$779,388 TOTAL: \$8,866,667
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/Jones, F. 19-Phys Sci, NEC
Trasco, J. D. GSFC/Hoegy, W. R.
Galvin, A. B.

NGR 21-002-317 University of Maryland - College Park 3396
Chemical studies of the origin of life
Period *Obligations*
08/18/71-03/31/89 FY88: \$69,000 TOTAL: \$1,957,248
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ponnamperuma, C. A. HQ-EB/Fogleman, S. W. 12-Chemistry
HQ-EB/Rummel, J. D.

NGT 00-050-055 University of Maryland - College Park 3397
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 FY88: \$18,000 TOTAL: \$52,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ramaty, R. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-056 University of Maryland - College Park 3398
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 FY88: \$18,000 TOTAL: \$50,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davis, C. C. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-148 University of Maryland - College Park 3399
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$17,800 TOTAL: \$35,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Khanna, R. K. HQ-XE/Owens, F. C. 12-Chemistry

NGT 00-050-150 University of Maryland - College Park 3400
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodman, J. HQ-XE/Owens, F. C. 13-Physics

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NGT 00-050-239 University of Maryland - College Park 3401

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A'hearn, M. F.	HQ-XE/Owens, F. C.	11-Astronomy

NGT 21-002-823 University of Maryland - College Park 3410

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/88	FY88:	TOTAL: \$47,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Donaldson, B.	HQ-LE/Owens, F. C.	41-Aero Engr

NGT 00-050-297 University of Maryland - College Park 3402

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goward, S. N.	HQ-XE/Owens, F. C.	39-Env Sci, NEC

NSG 5047 University of Maryland - College Park 3411

Study of the geochemistry and dispersal of radionuclides and trace metals in Chesapeake Bay sediments

<i>Period</i>	<i>Obligations</i>	
02/01/75-04/30/89	FY88:	TOTAL: \$8,509
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sommer, S. E.	GSFC/Cressy, P. J.	32-Geological Sci
Adler, I.	GSFC/Trombka, J. I.	

NGT 00-050-328 University of Maryland - College Park 3403

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramaty, R.	HQ-XE/Owens, F. C.	13-Physics

NSG 5123 University of Maryland - College Park 3412

Evaluation of software engineering disciplines

<i>Period</i>	<i>Obligations</i>	
08/01/76-05/31/89	FY88: \$194,986	TOTAL: \$1,206,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Basili, V. R.	GSFC/McGarry, F. E.	22-Computer Science
Rombach, D. H.		
Zelkowitz, M. V.		

NGT 00-070-090 University of Maryland - College Park 3404

Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
06/01/88-05/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winkelmann, A. E.	HQ-XE/Owens, F. C.	41-Aero Engr

NSG 5172 University of Maryland - College Park 3413

Raman spectroscopy of cosmic ices and planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
04/01/77-11/14/88	FY88: \$43,993	TOTAL: \$390,315
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Khanna, R. K.	GSFC/Donn, B. D.	12-Chemistry
	GSFC/Nuth, J. A.	

NGT 21-002-254 University of Maryland - College Park 3405

Summer faculty fellowship program in research for 24 faculty members

<i>Period</i>	<i>Obligations</i>	
12/23/69-12/31/88	FY88: \$8,800	TOTAL: \$1,838,713
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boroson, H. R.	HQ-XE/Owens, F. C.	49-Engr, NEC

NSG 5313 University of Maryland - College Park 3414

Resonance fluorescence in atmospheric gases research

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/87	FY88:	TOTAL: \$659,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McIlrath, T. J.	GSFC/Heaps, W. S.	13-Physics
	GSFC/McGee, T. J.	

NGT 21-002-818 University of Maryland - College Park 3406

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/01/84-04/30/87	FY88:	TOTAL: \$45,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yodh, G.	HQ-LB/Owens, F. C.	13-Physics

NSG 5423 University of Maryland - College Park 3415

Geologic modeling of the Patapsco watershed Maryland

<i>Period</i>	<i>Obligations</i>	
10/15/79-03/14/89	FY88: \$11,471	TOTAL: \$630,580
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chang, L. L.	GSFC/Bell, R.	32-Geological Sci
	GSFC/Masuoka, E. J.	

NGT 21-002-819 University of Maryland - College Park 3407

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/84-08/31/88	FY88: \$18,000	TOTAL: \$59,690
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kerr, F.	HQ-XE/Owens, F. C.	11-Astronomy

NSG 7322 University of Maryland - College Park 3416

Research on comets

<i>Period</i>	<i>Obligations</i>	
03/01/77-11/30/88	FY88: \$110,000	TOTAL: \$723,709
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A'hearn, M. F.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	

NGT 21-002-820 University of Maryland - College Park 3408

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/88	FY88:	TOTAL: \$52,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ipavich, F. M.	HQ-LE/Owens, F. C.	13-Physics

NCA 5-99 University of Maryland - Eastern Shore 3417

Engineering and pre-engineering activities

<i>Period</i>	<i>Obligations</i>	
06/16/82-05/31/89	FY88: \$44,000	TOTAL: \$324,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Muller, R. E.	GSFC/Menchan, D.	45-Elec Engr
	GSFC/Chapman, J. W.	

NGT 21-002-821 University of Maryland - College Park 3409

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
04/01/85-03/31/88	FY88:	TOTAL: \$52,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boldt, E.	HQ-LE/Owens, F. C.	13-Physics

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NCC 1-105 University of Maryland - Eastern Shore 3418
Main rotor wind tunnel tests and correlation with theories
Period Obligations
07/01/86-04/30/87 FY88: TOTAL: \$35,200
Prin. Invest. NASA Tech. Officer CASE Category
Barlow, J. B. LARC/Noonan, K. W. 41-Aero Engr

NAG 5-1013 Boston University 3426
High resolution drift chambers under the astromag study program
Period Obligations
07/15/88-07/14/89 FY88: \$20,740 TOTAL: \$20,740
Prin. Invest. NASA Tech. Officer CASE Category
Beatty, J. J. GSFC/Ormes, J. F. 13-Physics

NGT 21-002-822 Center For Environ & Estuarine Studies 3419
NASA graduate student researchers program
Period Obligations
05/01/85-06/30/88 FY88: TOTAL: \$51,600
Prin. Invest. NASA Tech. Officer CASE Category
Fisher, T. R. HQ-LE/Owens, F. C. 51-Biological Sci

NAG 8-467 Boston University 3427
Theoretical study of positron production and annihilation in the galactic center region under the HEAO 3 guest investigator program
Period Obligations
04/15/84-10/14/87 FY88: TOTAL: \$24,585
Prin. Invest. NASA Tech. Officer CASE Category
Brecher, K. MSFC/Potter, P. Y. 11-Astronomy

MASSACHUSETTS

NAG 1-564 Boston University 3420
Aerodynamics of unsteady viscous compressible flows past wings
Period Obligations
03/01/85-12/31/86 FY88: TOTAL: \$50,408
Prin. Invest. NASA Tech. Officer CASE Category
Bharadvaj, B. K. LARC/Yates, E. C., Jr. 41-Aero Engr
Morino, L.

NAG 8-671 Boston University 3428
The relationship between X ray flux and VLBI radio core brightness under SADAP
Period Obligations
08/01/87-07/31/88 FY88: TOTAL: \$29,000
Prin. Invest. NASA Tech. Officer CASE Category
Marscher, A. P. MSFC/Harper, B. 11-Astronomy

NAG 5-490 Boston University 3421
Optical diagnostics of selected chemical release experiments
Period Obligations
02/01/85-11/30/88 FY88: \$43,500 TOTAL: \$83,500
Prin. Invest. NASA Tech. Officer CASE Category
Mendillo, M. GSFC/Curtis, S. A. 13-Physics

NAG 9-168 Boston University 3429
Meteoritic basalts the nakhlites their parental magmas cooling rates and equivalents on Earth
Period Obligations
07/01/86-07/01/89 FY88: \$20,000 TOTAL: \$73,800
Prin. Invest. NASA Tech. Officer CASE Category
Treiman, A. H. JSC/Browne, I. D. 32-Geological Sci

NAG 5-564 Boston University 3422
A study of magnetospheric substorms onsets using spacecraft data
Period Obligations
07/01/85-09/30/87 FY88: TOTAL: \$72,150
Prin. Invest. NASA Tech. Officer CASE Category
Hughes, W. GSFC/Wales, R. O. 11-Astronomy

NAGW 1032 Boston University 3430
Superconducting magnet instrument for light isotopes
Period Obligations
12/01/86-11/30/88 FY88: \$112,000 TOTAL: \$207,000
Prin. Invest. NASA Tech. Officer CASE Category
Beatty, J. J. HQ-ES/Mellott, M. M. 13-Physics

NAG 5-640 Boston University 3423
Active experiments in the near Earth space environment
Period Obligations
01/01/87-12/31/88 FY88: \$140,000 TOTAL: \$240,000
Prin. Invest. NASA Tech. Officer CASE Category
Mendillo, M. GSFC/Earty, L. J. 13-Physics
GSFC/Pless, R. H.

NAS 8-32844 Boston University 3431
Use of the Space Shuttle to create plasma holes for ionospheric and radio astronomical studies
Period Obligations
10/01/77-09/30/87 FY88: TOTAL: \$472,251
Prin. Invest. NASA Tech. Officer CASE Category
Meudillo, M. MSFC/Harwell, B. 31-Atmos Sci
MSFC/Ise, R.

NAG 5-807 Boston University 3424
An ultraviolet study of the chromospheres of selected giants
Period Obligations
07/15/86-01/14/88 FY88: TOTAL: \$12,970
Prin. Invest. NASA Tech. Officer CASE Category
Janes, K. GSFC/Kondo, Y. 11-Astronomy
Smith, G. H.

NAS 8-36324 Boston University 3432
A study entitled releases to induce plasma instabilities at the equator ripe
Period Obligations
04/16/85-12/31/88 FY88: \$85,000 TOTAL: \$319,841
Prin. Invest. NASA Tech. Officer CASE Category
Mendillo, M. MSFC/Reasoner, D. L. 31-Atmos Sci

NAG 5-896 Boston University 3425
The use of spatial features in image segmentations
Period Obligations
04/15/87-04/14/88 FY88: TOTAL: \$14,749
Prin. Invest. NASA Tech. Officer CASE Category
Woodcock, C. E. GSFC/Tilton, J. C. 22-Computer Science

NCA 2-321 Boston University 3433
Far infrared spectroscopy of star formation regions
Period Obligations
06/01/88-05/31/90 FY88: \$11,490 TOTAL: \$11,490
Prin. Invest. NASA Tech. Officer CASE Category
Lane, A. P. ARC/Haas, M. R. 11-Astronomy
ARC/Hollenbach, D. J.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NGR 22-004-025	Boston University	3434			
Microbial contributions to the Precambrian Earth					
<i>Period</i>		<i>Obligations</i>			
12/15/70-12/31/88	FY88: \$90,000	TOTAL: \$1,057,149			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Margulis, L.	HQ-EB/Rummel, J. D.	32-Geological Sci			
	HQ-EB/Averner, M.				
NGT 00-050-245	Boston University	3435			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/01/87-12/31/88	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Woodcock, C.	HQ-XE/Owens, F. C.	39-Env Sci, NEC			
NGT 00-050-314	Boston University	3436			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Marcher, A. P.	HQ-XE/Owens, F. C.	11-Astronomy			
NAG 9-293	Brandeis University	3437			
Otolith reflex response					
<i>Period</i>		<i>Obligations</i>			
04/01/88-07/01/89	FY88: \$50,000	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Johnson, W. H.	JSC/Kutyna, F. A.	51-Biological Sci			
NAG 9-295	Brandeis University	3438			
Preventative countermeasures space adapt					
<i>Period</i>		<i>Obligations</i>			
03/01/88-01/01/89	FY88: \$400,000	TOTAL: \$400,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lackner, J. R.	JSC/Kutyna, F. A.	56-Medical Sciences			
NAS 9-15147	Brandeis University	3439			
Vestibular selection criteria development					
<i>Period</i>		<i>Obligations</i>			
09/01/76-06/01/88	FY88:	TOTAL: \$2,531,066			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lackner, J. B.	JSC/Kutyna, F.	59-Life Sci, NEC			
NGT 00-050-068	Brandeis University	3440			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
07/01/86-06/30/89	FY88: \$36,000	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Waltz, D.	HQ-LE/Owens, F. C.	45-Elec Engr			
NGT 00-050-306	Brandeis University	3441			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$13,000	TOTAL: \$13,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lackner, J. R.	HQ-XE/Owens, F. C.	69-Psych, NEC			
NGT 00-050-308	Brandeis University	3442			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$15,990	TOTAL: \$15,990			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wardle, J. F.	HQ-XE/Owens, F. C.	13-Physics			
NAG 1-55	Harvard University	3443			
Biogenic trace gas emissions and atmospheric chemistry in tropical forests atmospheric gases					
<i>Period</i>		<i>Obligations</i>			
04/03/80-12/31/88	FY88: \$376,412	TOTAL: \$2,065,319			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McElroy, M. B.	LARC/Fishman, J.	31-Atmos Sci			
Wofsy, S. C.	LARC/Hoell, J. M.				
NAG 2-443	Harvard University	3444			
Aircraft borne in situ detection of c10 and br0 for the exploration of ozone suppression in the southern polar vortex					
<i>Period</i>		<i>Obligations</i>			
10/01/86-09/30/87	FY88:	TOTAL: \$402,935			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, J. G.	ARC/Condon, E. P.	31-Atmos Sci			
Brune, W. H.					
NAG 2-451	Harvard University	3445			
Measurement of blood flows pressures and cardiac dimensions in Rhesus monkeys					
<i>Period</i>		<i>Obligations</i>			
04/01/87-03/31/89	FY88: \$224,000	TOTAL: \$283,151			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Vatner, S. F.	ARC/Ballard, R. W.	51-Biological Sci			
Knight, D. R.	ARC/Winget, C. M.				
Patrick, T. A.					
NAG 2-526	Harvard University	3446			
1988 arctic survey diurnal study sunrise and sunset and peak altitude 22 km flights for the in situ detection of c10 and br0 from the NASA ER 2 aircraft					
<i>Period</i>		<i>Obligations</i>			
02/01/88-12/31/88	FY88: \$62,699	TOTAL: \$62,699			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, J. G.	ARC/Condon, E. P.	31-Atmos Sci			
NAG 5-538	Harvard University	3447			
Very long baseline interferometry determination and interpretation of the relative motions within a network of sites in North America and Europe					
<i>Period</i>		<i>Obligations</i>			
05/01/85-03/31/89	FY88: \$151,210	TOTAL: \$496,277			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shapiro, I. I.	GSFC/Frey, H. V.	32-Geological Sci			
NAG 5-719	Harvard University	3448			
Chemistry of stratospheric and tropospheric gases					
<i>Period</i>		<i>Obligations</i>			
10/15/85-02/14/89	FY88: \$147,000	TOTAL: \$427,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McElroy, M. B.	GSFC/Prather, M.	31-Atmos Sci			
Wofsy, S. C.					
NAG 5-785	Harvard University	3449			
Theoretical studies of atmospheric chemistry					
<i>Period</i>		<i>Obligations</i>			
06/01/86-11/30/87	FY88:	TOTAL: \$210,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
McElroy, M. B.	GSFC/Prather, M. J.	31-Atmos Sci			
Wofsy, S. C.					

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 5-786	Harvard University	3450		NAG 9-264	Harvard University	3458	
Three-dimensional modeling of the stratosphere				Role of kidney in fluid and electrolyte response to cephalad volume shift			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
06/01/86-11/30/87	FY88:	TOTAL: \$135,000		01/01/88-01/01/89	FY88: \$60,000	TOTAL: \$60,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
McElroy, M. B.	GSFC/Prather, M. J.	31-Atmos Sci		Ede, M. C.	JSC/Cintron, N. M.	56-Medical Sciences	
Wofsy, S. C.				Churchill, D.			
NAG 5-840	Harvard University	3451		NAGW 79	Harvard University	3459	
Continental and lithospheric deformation				Theoretical program in plasma and magnetohydrodynamics processes relevant to the solar corona and its analogues			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
09/01/86-03/31/89	FY88: \$104,495	TOTAL: \$257,693		06/01/80-12/31/87	FY88:	TOTAL: \$1,221,283	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
O'connell, R. J.	GSFC/Frey, H. V.	32-Geological Sci		Rosner, R.	HQ-EE/Butler, D. M.	11-Astronomy	
Englend, P. C.					HQ-EE/Curtis, S. A.		
NAG 5-841	Harvard University	3452		NAGW 417	Harvard University	3460	
Supernova spectroscopy research				Theoretical studies of the composition and evolution of planetary atmospheres			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
09/15/86-10/14/88	FY88:	TOTAL: \$43,752		01/01/83-03/31/88	FY88:	TOTAL: \$321,771	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kirshner, R. P.	GSFC/Kondo, Y.	11-Astronomy		McElroy, G. B.	HQ-EL/Fox, K.	31-Atmos Sci	
					HQ-EL/Quaide, W. L.		
NAG 5-918	Harvard University	3453		NAGW 599	Harvard University	3461	
Geomagnetic field analysis simultaneous stochastic inversion for the main field and secular variation				Paleosols as indicators of atmospheric evolution			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
06/01/87-08/31/89	FY88: \$65,255	TOTAL: \$118,775		04/01/84-09/30/88	FY88: \$49,997	TOTAL: \$229,997	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bloxham, J.	GSFC/Welker, J. E.	32-Geological Sci		Holland, A. D.	HQ-EB/Rummel, J. D.	32-Geological Sci	
					HQ-EB/Averner, M.		
NAG 8-578	Harvard University	3454		NAGW 624	Harvard University	3462	
A comparison of X ray and optical properties of early type galaxies				Development of an energetic X ray imaging experiment (EXITE) and associated balloon gondola system			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
04/01/86-03/31/88	FY88:	TOTAL: \$8,203		04/01/84-03/31/89	FY88: \$364,212	TOTAL: \$1,179,965	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Djorgovski, S.	MSFC/Harper, B.	11-Astronomy		Grindlay, J.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy	
					HQ-EZ/Bunner, A. N.		
NAG 8-603	Harvard University	3455		NAGW 893	Harvard University	3463	
X ray and optical images of LMC supernova remnants				Continued research			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
10/01/86-09/30/88	FY88:	TOTAL: \$22,742		05/15/86-11/30/88	FY88: \$60,964	TOTAL: \$145,954	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kirshner, R. P.	MSFC/Harper, B. A.	11-Astronomy		Knoll, A. H.	HQ-EB/Rummel, J. D.	32-Geological Sci	
					HQ-EB/Averner, M.		
NAG 8-655	Harvard University	3456		NAGW 1230	Harvard University	3464	
Temporal and spectral signatures of black hole accretion				Stratospheric chemistry			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
07/01/87-06/30/88	FY88:	TOTAL: \$14,885		12/01/87-11/30/88	FY88: \$185,020	TOTAL: \$185,020	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Grindlay, J. E.	MSFC/Harper, B. A.	11-Astronomy		Wofsy, S. C.	HQ-EE/Jackman, C. H.	31-Atmos Sci	
					HQ-EE/Butler, D. M.		
NAG 9-17	Harvard University	3457		NAGW 1337	Harvard University	3465	
Angiotensin antagonists and volume homeostasis: Studies in man, intact animals and isolated tissues				High angular resolution observation of SN 1987a			
<i>Period</i>		<i>Obligations</i>		<i>Period</i>		<i>Obligations</i>	
03/06/81-09/01/89	FY88: \$39,000	TOTAL: \$283,500		07/01/88-06/30/89	FY88: \$25,023	TOTAL: \$25,023	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hollenberg, N. K.	JSC/Cintron, N. M.	56-Medical Sciences		Papaliolios, C.	HQ-EZ/Stachnik, R. V.	11-Astronomy	

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAGW 1384	Harvard University	3466			
Planetary atmospheres					
<i>Period</i>		<i>Obligations</i>			
10/01/88-09/30/89	FY88: \$10,000	TOTAL: \$10,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goody, R. M.	HQ-EL/Fox, K. HQ-EL/Quaide, W. L.	31-Atmos Sci			
NAGW 1400	Harvard University	3467			
Low temperature absorption coefficients for molecules in planetary atmospheric					
<i>Period</i>		<i>Obligations</i>			
07/01/88-06/30/89	FY88: \$42,370	TOTAL: \$42,370			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Parkinson, W. H.	HQ-EL/Fox, K. HQ-EL/Quaide, W. L.	31-Atmos Sci			
NAS 2-10547	Harvard University	3468			
Fluid and electrolyte homeostasis during spaceflight: Elucidation of mechanisms in a primate					
<i>Period</i>		<i>Obligations</i>			
01/17/80-03/31/88	FY88: \$110,000	TOTAL: \$1,663,717			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Moore-ede, M. C.	ARC/Leon, H. ARC/Connolly, J.	51-Biological Sci			
NASW 3960	Harvard University	3469			
Field measurement program to examine in situ, the photochemistry of H, OH, HO, H ₂ O, C ₁ , C ₁ O, NO, O,					
<i>Period</i>		<i>Obligations</i>			
04/01/84-03/31/89	FY88: \$1,787,107	TOTAL: \$7,759,090			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, J. G.	HQ-EE/Margitan, J. J. HQ-EE/Watson, R. T.	31-Atmos Sci			
NCC 2-457	Harvard University	3470			
To produce guidelines for team performance and organizational structure in aerospace environments					
<i>Period</i>		<i>Obligations</i>			
01/01/87-10/30/88	FY88: \$45,000	TOTAL: \$135,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hackman, J. R. Ginnett, R. C.	ARC/Foushee, H. C.	62-Social Aspects			
NGL 22-007-006	Harvard University	3471			
Theoretical and experimental studies on ultraviolet solar physics					
<i>Period</i>		<i>Obligations</i>			
07/10/83-09/30/88	FY88: \$129,000	TOTAL: \$6,561,398			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Parkinson, W. H.	HQ-ES/Ahluwalia, H. S. HQ-EZ/Bohlin, J. D.	13-Physics			
NGL 22-007-228	Harvard University	3472			
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers					
<i>Period</i>		<i>Obligations</i>			
12/15/71-10/31/88	FY88:	TOTAL: \$3,829,999			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Goody, R. M. Lindzen, R. S.	HQ-EL/Fox, K. HQ-EL/Quaide, W. L.	31-Atmos Sci			
NGR 22-007-269	Harvard University	3473			
Theoretical research in planetary physics					
<i>Period</i>		<i>Obligations</i>			
09/01/73-02/28/89	FY88: \$58,000	TOTAL: \$868,304			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cameron, A. G.	HQ-EL/Boyce, J. M. HQ-EL/Fox, K.	32-Geological Sci			
NGR 22-007-272	Harvard University	3474			
Theoretical studies in space astronomy					
<i>Period</i>		<i>Obligations</i>			
09/01/73-09/30/88	FY88: \$32,278	TOTAL: \$765,240			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cameron, A. G.	HQ-EZ/Kaluzienski, L. J. HQ-EZ/Runner, A. N.	11-Astronomy			
NGT 00-050-020	Harvard University	3475			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
07/01/86-05/31/89	FY88: \$18,000	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rosner, R.	HQ-XE/Owens, F. C.	11-Astronomy			
NGT 00-050-028	Harvard University	3476			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
07/01/86-08/31/89	FY88: \$2,000	TOTAL: \$36,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wood, J. A.	HQ-LE/Owens, F. C.	32-Geological Sci			
NGT 00-050-240	Harvard University	3477			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Moran, J. M.	HQ-XE/Owens, F. C.	11-Astronomy			
NGT 00-050-290	Harvard University	3478			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Grindlay, J. E.	HQ-XE/Owens, F. C.	13-Physics			
NGT 00-050-300	Harvard University	3479			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stanley, H. E.	HQ-XE/Owens, F. C.	13-Physics			
NGT 00-050-352	Harvard University	3480			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fazio, G. G.	HQ-XE/Owens, F. C.	11-Astronomy			
NSG 7176	Harvard University	3481			
Participation in NASA core funding					
<i>Period</i>		<i>Obligations</i>			
11/01/75-03/31/89	FY88: \$255,000	TOTAL: \$2,744,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shapiro, I. I. McElroy, M. B.	HQ-E/Alexander, J. K. HQ-EP/Konkel, R. M.	11-Astronomy			

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 7304 Harvard University 3482
Absolute transition probabilities in ultraviolet spectra of interstellar molecules

<i>Period</i>	<i>Obligations</i>	
12/15/76-02/14/89	FY88: \$70,401	TOTAL: \$684,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parkinson, W. H.	HQ-EZ/Stachnik, R. V.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NAG 1-126 Massachusetts Institute of Technology 3483
Reliability issues in active control of large flexible space structures

<i>Period</i>	<i>Obligations</i>	
11/15/80-11/14/88	FY88: \$55,841	TOTAL: \$695,367
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vanderveelde, W. E.	LARC/Montgomery, R. C.	41-Aero Engr
Walker, B.	LARC/Williams, J. P.	

NAG 1-358 Massachusetts Institute of Technology 3484
Computational methods for vortex dominated compressible flows

<i>Period</i>	<i>Obligations</i>	
04/01/83-06/30/87	FY88:	TOTAL: \$199,131
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murman, E. M.	LARC/Melson, N. D.	41-Aero Engr
	LARC/Salas, M. D.	

NAG 1-489 Massachusetts Institute of Technology 3485
Study of advanced methods for the dynamic control of high performance robotic devices and manipulators with potential for application in space

<i>Period</i>	<i>Obligations</i>	
06/01/84-06/30/87	FY88:	TOTAL: \$264,216
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dubowsky, S.	LARC/Soloway, D.	46-Mech Engr
	LARC/Harrison, F. W.	

NAG 1-507 Massachusetts Institute of Technology 3486
Computational fluid dynamics

<i>Period</i>	<i>Obligations</i>	
09/01/84-05/31/89	FY88: \$60,235	TOTAL: \$280,979
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murman, E. M.	LARC/Melson, N. D.	41-Aero Engr
Baron, J. R.	LARC/Salas, M. D.	

NAG 1-568 Massachusetts Institute of Technology 3487
Effect of surface chemistry on aerodynamic penalty associated with flight through heavy rain

<i>Period</i>	<i>Obligations</i>	
02/11/85-06/30/87	FY88:	TOTAL: \$79,215
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hansman, R. J., Jr.	LARC/Dunham, R. E., Jr.	41-Aero Engr

NAG 1-574 Massachusetts Institute of Technology 3488
Sub-domain techniques for solution of the Euler and Navier-Stokes equations on parallel processors

<i>Period</i>	<i>Obligations</i>	
06/01/85-06/30/87	FY88:	TOTAL: \$45,210
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Patera, A. T.	LARC/Zang, T. A.	29-Math/Cmputer, NEC
Murman, E. M.	LARC/Dwoyer, D. L.	

NAG 1-690 Massachusetts Institute of Technology 3489
Flight research activities

<i>Period</i>	<i>Obligations</i>	
07/01/86-09/30/88	FY88:	TOTAL: \$30,957
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hansman, R. J.	LARC/Holmes, B. J.	41-Aero Engr
	LARC/Carden, H. D.	

NAG 1-801 Massachusetts Institute of Technology 3490
The dynamic control of robotic manipulators in space

<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/89	FY88: \$124,882	TOTAL: \$238,840
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dubowsky, S.	LARC/Harrison, F. W.	46-Mech Engr
	LARC/Pennington, J. E.	

NAG 1-836 Massachusetts Institute of Technology 3491
Low speed flight research with the MIT Dae Dalus and light eagle aircraft

<i>Period</i>	<i>Obligations</i>	
01/12/88-09/30/88	FY88: \$99,970	TOTAL: \$99,970
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kerrebrock, J. L.	LARC/Winston, M. M.	41-Aero Engr
Langford, J. S.		
Bussolari, S. R.		

NAG 1-855 Massachusetts Institute of Technology 3492
Validation of an Navier-Stokes code with the NTF delta wing model data

<i>Period</i>	<i>Obligations</i>	
02/18/88-02/17/89	FY88: \$49,821	TOTAL: \$49,821
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murman, E. M.	LARC/Melson, N. D.	41-Aero Engr
	LARC/Salas, M. D.	

NAG 2-12 Massachusetts Institute of Technology 3493
Research on visual vestibular interaction and its application to flight simulation

<i>Period</i>	<i>Obligations</i>	
12/01/79-09/30/88	FY88: \$100,000	TOTAL: \$719,038
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	ARC/Lee, A. T.	49-Engr, NEC
Bussolari, S. R.	ARC/Shafto, M. G.	
Kenyon, R.		

NAG 2-251 Massachusetts Institute of Technology 3494
Vortex-wake dynamics: Application to rotor airload calculations

<i>Period</i>	<i>Obligations</i>	
09/01/83-01/31/88	FY88:	TOTAL: \$260,444
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Widnall, S. E.	ARC/Johnson, W. R.	41-Aero Engr
	ARC/Warmbrodt, W.	

NAG 2-257 Massachusetts Institute of Technology 3495
Determining the causes of the large images on the Kuiper Airborne Observatory

<i>Period</i>	<i>Obligations</i>	
11/01/83-07/31/88	FY88:	TOTAL: \$751,105
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elliot, J. L.	ARC/Gillespie, C. M., Jr.	19-Phys Sci, NEC
	ARC/Cameron, R. M.	

NAG 2-275 Massachusetts Institute of Technology 3496
Analytical investigation of rotor wake formation and geometry

<i>Period</i>	<i>Obligations</i>	
02/01/84-01/14/88	FY88: \$458	TOTAL: \$156,901
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Van Dam, C. P.	LARC/Holmes, B. J.	41-Aero Engr
Murman, E. M.	LARC/Johnson, J. L., Jr.	

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 2-297 Massachusetts Institute of Technology 3497
Nonlinear and adaptive control systems

<i>Period</i>	<i>Obligations</i>	
06/01/84-01/15/89	FY88: \$30,000	TOTAL: \$470,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Athans, M.	ARC/Meyer, G.	49-Engr, NEC

NAG 3-660 Massachusetts Institute of Technology 3505
Direct simulation of 3-D fluid mechanical phenomena in internal flows

<i>Period</i>	<i>Obligations</i>	
10/05/85-12/02/88	FY88: \$50,655	TOTAL: \$143,511
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Covert, E. E.	LERC/Adamczyk, J. J.	41-Aero Engr
Tan, C. S.		

NAG 2-327 Massachusetts Institute of Technology 3498

Noninvasive assessment of cardiorespiratory functi and regulation by mathematical analysis of periodi

<i>Period</i>	<i>Obligations</i>	
01/01/85-03/31/88	FY88:	TOTAL: \$269,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coreen, R. I.	ARC/Billingham, J.	59-Life Sci, NEC

NAG 3-666 Massachusetts Institute of Technology 3506

Quantitative studies of ice accretion utilizing ultrasonic measurement techniques

<i>Period</i>	<i>Obligations</i>	
11/17/85-11/30/88	FY88: \$40,000	TOTAL: \$105,080
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hansman, R. J.	LERC/Potapczuk, M. G.	41-Aero Engr

NAG 2-421 Massachusetts Institute of Technology 3499

Calculation methods for rotor wake formation in fowasrd flight

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/89	FY88: \$41,578	TOTAL: \$98,835
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drela, M.	ARC/Stremel, P. M.	41-Aero Engr
	ARC/Smith, C. A.	

NAG 3-680 Massachusetts Institute of Technology 3507

Structural properties of high temperature composites

<i>Period</i>	<i>Obligations</i>	
12/26/85-09/30/89	FY88: \$80,000	TOTAL: \$240,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mandell, J. F.	LERC/Chamis, C. C.	41-Aero Engr
	LERC/Grady, J. E.	

NAG 2-445 Massachusetts Institute of Technology 3500

Visual vestibular interaction

<i>Period</i>	<i>Obligations</i>	
01/01/87-12/31/88	FY88: \$112,200	TOTAL: \$232,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	ARC/Daunton, N. G.	51-Biological Sci
Oman, C.	ARC/Corcoran, M. L.	

NAG 3-681 Massachusetts Institute of Technology 3508

Current and gradient driven instabilities about the tethered satellite system

<i>Period</i>	<i>Obligations</i>	
12/26/85-01/24/89	FY88: \$50,000	TOTAL: \$130,165
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hastings, D. E.	LERC/Kolecki, J. C.	13-Physics
	LERC/Purvis, C. K.	

NAG 2-475 Massachusetts Institute of Technology 3501

Opportunity observations of occultations and eclipses does pluto have an atmosphere

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$123,095	TOTAL: \$123,095
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elliott, J. L.	ARC/Haughney, L. C.	11-Astronomy

NAG 3-695 Massachusetts Institute of Technology 3509

Investigation of interaction between ac power lines and space plasmas

<i>Period</i>	<i>Obligations</i>	
02/01/86-10/30/88	FY88: \$68,420	TOTAL: \$184,336
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hastings, D. E.	LERC/Snyder, D. B.	19-Phys Sci, NEC
Olbert, S.		

NAG 2-478 Massachusetts Institute of Technology 3502

The component modelling approach to computer aided conceptual design

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$94,762	TOTAL: \$94,762
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drela, M.	ARC/Kidwell, G. H.	41-Aero Engr
Kolb, M. A.		

NAG 3-731 Massachusetts Institute of Technology 3510

Characterization of the vapor condensation rate on a liquid interface for application in low gravity environments

<i>Period</i>	<i>Obligations</i>	
06/15/86-06/12/89	FY88: \$75,430	TOTAL: \$209,489
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sonin, A. A.	LERC/Defelice, D. M.	46-Mech Engr
	LERC/Aydelott, J. C.	

NAG 3-82 Massachusetts Institute of Technology 3503

Development and use of generalized internal combustion engine cycle simulations

<i>Period</i>	<i>Obligations</i>	
06/23/80-10/28/87	FY88:	TOTAL: \$520,691
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heywood, J. B.	LERC/Nguyen, H. L.	41-Aero Engr
	LERC/Schock, H. J.	

NAG 3-770 Massachusetts Institute of Technology 3511

Active stabilization of centrifugal compressors

<i>Period</i>	<i>Obligations</i>	
12/24/86-02/22/89	FY88: \$82,524	TOTAL: \$144,334
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Epstein, A. H.	LERC/Schumann, L. F.	41-Aero Engr
Greitzer, E. M.		

NAG 3-328 Massachusetts Institute of Technology 3504

Wave propagation in fiber composites relating to acoustic ultrasonic NDE techniques

<i>Period</i>	<i>Obligations</i>	
10/06/82-02/22/89	FY88: \$19,000	TOTAL: \$259,342
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, J. H., Jr.	LERC/Kautz, H. E.	47-Materials Engr
Lee, S. S.	LERC/Vary, A.	

NAG 3-772 Massachusetts Institute of Technology 3512

3D flow in radial turbomachinery and its impact on design

<i>Period</i>	<i>Obligations</i>	
01/01/87-02/28/89	FY88: \$82,000	TOTAL: \$163,046
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Covert, E. E.	LERC/Meitner, P. L.	41-Aero Engr
Hawthorne, W.	LERC/Civinskis, K. C.	

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 3-808 Massachusetts Institute of Technology 3513
Solidification processing of dispersed phase reinforced mg alloy composites under 1 G and microgravity conditions

<i>Period</i>	<i>Obligations</i>	
08/04/87-08/03/89	FY88: \$150,000	TOTAL: \$300,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cornie, J. A.	LERC/Harf, F. H.	47-Materials Engr
Szekely, J.	LERC/Kohl, F. J.	

NAG 3-819 Massachusetts Institute of Technology 3514
Information requirements for failure detection and isolation in integrated hierarchical control system

<i>Period</i>	<i>Obligations</i>	
09/15/87-04/14/89	FY88: \$79,924	TOTAL: \$127,267
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vander Velde, W. E.	LERC/Merrill, W. C.	41-Aero Engr

NAG 3-844 Massachusetts Institute of Technology 3515
Unsteady flow in multistage turbomachines

<i>Period</i>	<i>Obligations</i>	
11/05/87-12/09/89	FY88: \$34,997	TOTAL: \$34,997
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greitzer, E. M.	LERC/Adamczyk, J. J.	41-Aero Engr

NAG 3-845 Massachusetts Institute of Technology 3516
Nitriding kinetics and interface properties in silicon carbide reinforced reaction bonded silicon nitride composites

<i>Period</i>	<i>Obligations</i>	
12/10/87-12/09/88	FY88: \$75,388	TOTAL: \$75,388
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haggerty, J. S.	LERC/Bhatt, R. T.	47-Materials Engr

NAG 3-927 Massachusetts Institute of Technology 3517
Advanced ice detection technology for helicopter and aircraft applications

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$49,661	TOTAL: \$49,661
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hansman, R. J.	LERC/Reinmann, J. J.	41-Aero Engr

NAG 5-10 Massachusetts Institute of Technology 3518
Improved microwave retrieval techniques for atmospheric temperatures, winds and humidity

<i>Period</i>	<i>Obligations</i>	
02/01/80-12/31/88	FY88: \$172,000	TOTAL: \$1,245,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Shiue, J. C.	31-Atmos Sci
Rosenranz, P. W.	GSFC/Wilheit, T. T.	

NAG 5-270 Massachusetts Institute of Technology 3519
Remote sensing of Earth terrain

<i>Period</i>	<i>Obligations</i>	
09/01/82-03/31/89	FY88: \$97,000	TOTAL: \$573,606
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Oliver, D. O.	GSFC/Oseroff, H.	55-Agriculture Sci
Dewitt, K. J.		

NAG 5-300 Massachusetts Institute of Technology 3520
Seismicity and active tectonics of the Andes and the origin of the Altiplano

<i>Period</i>	<i>Obligations</i>	
03/15/83-06/30/88	FY88:	TOTAL: \$169,304
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Molnar, P.	GSFC/Kouns, C. W.	32-Geological Sci
Burchfiel, B. C.	GSFC/Frey, H.	

NAG 5-415 Massachusetts Institute of Technology 3521
Variable viscosity and flow in the Earth's mantle

<i>Period</i>	<i>Obligations</i>	
04/01/84-05/14/87	FY88:	TOTAL: \$156,011
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parsons, B.	GSFC/Welker, J. E.	32-Geological Sci
Daly, S. F.		

NAG 5-459 Massachusetts Institute of Technology 3522
Plate motions and deformations from geologic and geodetic data

<i>Period</i>	<i>Obligations</i>	
08/01/84-12/31/88	FY88: \$82,710	TOTAL: \$293,710
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jordan, T. H.	GSFC/Frey, H. V.	32-Geological Sci

NAG 5-495 Massachusetts Institute of Technology 3523
Coordinated observations of X ray bright objects from X ray and radio wavelengths

<i>Period</i>	<i>Obligations</i>	
03/15/85-12/31/87	FY88:	TOTAL: \$12,063
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Urry, C. M.	GSFC/Kondo, Y.	11-Astronomy
Mufson, S. L.		

NAG 5-510 Massachusetts Institute of Technology 3524
Use of LANDSAT images of vegetation cover to estimate effective hydraulic properties of soil

<i>Period</i>	<i>Obligations</i>	
02/01/85-09/30/88	FY88:	TOTAL: \$260,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eagleson, P. S.	GSFC/Choudhury, B.	32-Geological Sci
Bras, R. L.		

NAG 5-532 Massachusetts Institute of Technology 3525
Flexural deformation of the continental lithosphere of the adriatic sea

<i>Period</i>	<i>Obligations</i>	
05/01/85-06/30/89	FY88: \$64,180	TOTAL: \$184,185
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Royden, L. H.	GSFC/Welker, J. E.	32-Geological Sci

NAG 5-537 Massachusetts Institute of Technology 3526
Jupiter radio astronomy studies

<i>Period</i>	<i>Obligations</i>	
05/01/85-12/31/88	FY88:	TOTAL: \$52,240
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Kaiser, M. L.	13-Physics
	GSFC/Desch, M. D.	

NAG 5-584 Massachusetts Institute of Technology 3527
Analysis of the solar wind experiment

<i>Period</i>	<i>Obligations</i>	
10/01/85-01/31/89	FY88: \$90,679	TOTAL: \$234,556
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lazarus, A. J.	GSFC/Wales, R. O.	11-Astronomy

NAG 5-645 Massachusetts Institute of Technology 3528
The atmosphere of supernova 1987a in the large Magellanic cloud

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/88	FY88:	TOTAL: \$53,071
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kirshner, R. P.	GSFC/Earty, L. J.	11-Astronomy
	GSFC/Pless, R. H.	

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 5-737 Massachusetts Institute of Technology 3529
Research relative to lunar laser ranging data
Period *Obligations*
01/20/86-02/28/89 FY88: \$85,760 TOTAL: \$255,760
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, R. W. GSFC/Frey, H. V. 32-Geological Sci

NAG 5-927 Massachusetts Institute of Technology 3537
The time evolution of persistent anomalies mechanisms and relationships to variations in eddy activity
Period *Obligations*
06/15/87-01/14/89 FY88: \$102,000 TOTAL: \$148,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dole, R. M. GSFC/Straus, D. 31-Atmos Sci

NAG 5-740 Massachusetts Institute of Technology 3530
Strain accumulation and surface deformation along the San Andreas, California
Period *Obligations*
03/01/86-03/31/89 FY88: \$57,501 TOTAL: \$160,004
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Li, V. C. GSFC/Frey, H. V. 32-Geological Sci

NAG 5-977 Massachusetts Institute of Technology 3538
Ultraviolet spectra of active galactic nuclei with strong iron II emission
Period *Obligations*
09/01/87-08/31/99 FY88: TOTAL: \$15,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Remillard, R. A. GSFC/Kondo, Y. 11-Astronomy
Tuohy, I. R.
Brissenden, R.

NAG 5-743 Massachusetts Institute of Technology 3531
Extensions and testing the hydrological parameterization of the atmospheric general circulation model
Period *Obligations*
03/01/86-03/31/89 FY88: TOTAL: \$156,175
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Eagleson, P. S. GSFC/Genio, A. D. 31-Atmos Sci

NAG 5-1055 Massachusetts Institute of Technology 3539
Generation of artificial plasma layers by two microwave beams via air breakdown
Period *Obligations*
06/15/88-01/14/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, M. C. GSFC/Benson, R. F. 13-Physics

NAG 5-753 Massachusetts Institute of Technology 3532
Interpretation of crustal dynamics data
Period *Obligations*
03/15/86-04/14/89 FY88: \$53,514 TOTAL: \$157,485
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Toksoz, M. N. GSFC/Frey, H. V. 32-Geological Sci

NAG 5-1061 Massachusetts Institute of Technology 3540
Computational dispersion properties 2, 3, and 4 grids
Period *Obligations*
11/01/88-04/30/89 FY88: \$31,570 TOTAL: \$31,570
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lindzen, R. S. GSFC/Helfand, C. M. 31-Atmos Sci

NAG 5-795 Massachusetts Institute of Technology 3533
Rat's crustal deformation in Asia and other action continental regions
Period *Obligations*
06/15/86-06/14/89 FY88: \$33,600 TOTAL: \$163,217
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Molnar, P. GSFC/Welker, J. 32-Geological Sci

NAG 5-1084 Massachusetts Institute of Technology 3541
Deep thermal structure of rifts
Period *Obligations*
10/01/88-07/31/89 FY88: \$59,900 TOTAL: \$59,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McNutt, M. GSFC/Welker, J. E. 31-Atmos Sci

NAG 5-814 Massachusetts Institute of Technology 3534
The interpretation of crustal dynamics data in terms of plate motions and regional deformation
Period *Obligations*
09/22/86-03/21/89 FY88: \$159,572 TOTAL: \$397,142
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Solomon, S. C. GSFC/Frey, H. V. 32-Geological Sci
Toksoz, M. N.

NAG 8-84 Massachusetts Institute of Technology 3542
Microgravity solidification of monotectic alloy matrix composite
Period *Obligations*
12/18/86-09/31/89 FY88: \$59,996 TOTAL: \$119,805
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Russell, K. C. MSFC/Curevi, P. A. 47-Materials Engr
MSFC/Straus, E. M.

NAG 5-874 Massachusetts Institute of Technology 3535
Extended magnetic field structures in the ionosphere
Period *Obligations*
02/15/87-02/28/89 FY88: \$81,000 TOTAL: \$91,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Post, R. S. GSFC/Ormes, J. A. 12-Chemistry
Sullivan, J. D.

NAG 8-493 Massachusetts Institute of Technology 3543
Scientific investigations with the data base HEAO-1 scanning modulator collimator
Period *Obligations*
10/01/84-09/30/88 FY88: \$85,000 TOTAL: \$359,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bradt, H. MSFC/Harper, B. 11-Astronomy

NAG 5-889 Massachusetts Institute of Technology 3536
Electromagnetic wave probing of Earth's environment
Period *Obligations*
04/01/87-12/31/87 FY88: TOTAL: \$146,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, J. A. GSFC/Shiue, J. C. 45-Elec Engr
Lee, M. C.

NAG 8-494 Massachusetts Institute of Technology 3544
Analysis of data obtained with the HEAO-2 satellite
Period *Obligations*
10/01/84-09/30/88 FY88: \$350,150 TOTAL: \$1,482,580
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clark, G. W. MSFC/Harper, B. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 8-495 Massachusetts Institute of Technology 3545
Analysis and evaluation of data obtained from the HEAO A-4 experiment

<i>Period</i>	<i>Obligations</i>	
10/01/84-12/31/88	FY88: \$35,000	TOTAL: \$225,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, W. H.	MSFC/Harper, B.	11-Astronomy

NAG 8-701 Massachusetts Institute of Technology 3553
The atmospheric structures of the binary companions of accretion powered X ray stars

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$66,062	TOTAL: \$66,062
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G. C.	MSFC/Harper, B.	11-Astronomy

NAG 8-517 Massachusetts Institute of Technology 3546
An X-ray survey of nearby galaxies

<i>Period</i>	<i>Obligations</i>	
03/01/85-06/31/87	FY88:	TOTAL: \$9,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Markert, T. H.	MSFC/Johnson, W. G.	11-Astronomy

NAG 9-108 Massachusetts Institute of Technology 3554
Non equilibrium chemistry of the early solar system

<i>Period</i>	<i>Obligations</i>	
05/01/85-05/01/89	FY88: \$43,000	TOTAL: \$160,010
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Prinn, R. G.	JSC/Browne, I. D.	47-Materials Engr

NAG 8-571 Massachusetts Institute of Technology 3547
Investigation under the EXOSAT guest investigator program

<i>Period</i>	<i>Obligations</i>	
01/01/86-12/31/87	FY88:	TOTAL: \$151,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, W. G.	MSFC/Harper, B.	11-Astronomy
Trumper, J.		
Paradijs, J. V.		

NAG 9-125 Massachusetts Institute of Technology 3555
Effects of display orientation and graphic input devices on workload and performance in zero gravity

<i>Period</i>	<i>Obligations</i>	
03/01/85-07/01/89	FY88: \$127,515	TOTAL: \$450,205
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bussolari, S. R.	JSC/Plaza, A. L.	39-Env Sci, NEC
Lichtenberg, B. K.	JSC/Evans, J. S.	

NAG 8-610 Massachusetts Institute of Technology 3548
Further EXOSAT observations of the unusual BL LAC H0323T022

<i>Period</i>	<i>Obligations</i>	
12/01/86-11/30/87	FY88:	TOTAL: \$5,788
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bradt, H.	MSFC/Potter, P. Y.	11-Astronomy

NAG 9-132 Massachusetts Institute of Technology 3556
Investigation of plasma contactors with tethers

<i>Period</i>	<i>Obligations</i>	
03/16/86-12/16/87	FY88:	TOTAL: \$61,944
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hastings, D.	JSC/McCoy, J. E.	42-Astro Engr

NAG 8-673 Massachusetts Institute of Technology 3549
Timing analysis of bright X ray binaries observed with the HEAO 1 scanning modulation collimator

<i>Period</i>	<i>Obligations</i>	
08/14/87-08/13/88	FY88:	TOTAL: \$26,555
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bradt, H. V.	MSFC/Harper, B.	11-Astronomy
Remillard, R. A.		

NAG 9-144 Massachusetts Institute of Technology 3557
Nutritional control of brain neurotransmitters

<i>Period</i>	<i>Obligations</i>	
03/15/86-03/15/89	FY88: \$80,000	TOTAL: \$260,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wurtman, R. J.	JSC/Cintron, N. M.	56-Medical Sciences
Lieberman, H. R.		

NAG 8-674 Massachusetts Institute of Technology 3550
X ray burst and quasi periodic oscillations using EXOSAT database

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88:	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, W. H.	MSFC/Harper, B.	11-Astronomy

NAG 9-244 Massachusetts Institute of Technology 3558
Experiments on the etiology and time course of motion sickness

<i>Period</i>	<i>Obligations</i>	
07/01/87-07/01/89	FY88: \$99,991	TOTAL: \$170,911
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Oman, C. M.	JSC/Kutyna, F. A.	56-Medical Sciences

NAG 8-691 Massachusetts Institute of Technology 3551
Head MC identified objects with astro C visitor investigating program

<i>Period</i>	<i>Obligations</i>	
12/01/87-11/30/88	FY88: \$41,034	TOTAL: \$41,034
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bradt, H.	MSFC/Harper, B.	11-Astronomy

NAG 9-252 Massachusetts Institute of Technology 3559
Oxidation of products of human metabolism in supercritical water

<i>Period</i>	<i>Obligations</i>	
09/01/87-09/01/89	FY88: \$50,000	TOTAL: \$90,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tester, J. W.	JSC/Verostko, C. E.	43-Chem Engr

NAG 8-700 Massachusetts Institute of Technology 3552
Quasi periodic oscillations from bright galactic bulge sources with ginga

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88: \$73,606	TOTAL: \$73,606
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, W. H.	MSFC/Harper, B.	11-Astronomy

NAG 9-302 Massachusetts Institute of Technology 3560
Crystallization processes in the interior of the eucrite parent body

<i>Period</i>	<i>Obligations</i>	
07/01/88-07/01/89	FY88: \$35,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grove, T. L.	JSC/Browne, I. D.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 9-319 Massachusetts Institute of Technology 3561

Automatic grasping an investigation of reflexive behaviors

<i>Period</i>	<i>Obligations</i>	
09/01/88-09/01/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Salisbury, J. K.	JSC/Hess, C. W.	99-Multi-Discip

NAGW 21 Massachusetts Institute of Technology 3562

Continuation of the research program encompassed by space engineering

<i>Period</i>	<i>Obligations</i>	
11/01/79-09/30/88	FY88: \$703,385	TOTAL: \$4,510,320
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mar, J. W.	HQ-RC/Monterlo, M.	42-Astro Engr
Crawley, C. W.	HQ-RM/Greenfield, M.	
Miller, R. H.		

NAGW 114 Massachusetts Institute of Technology 3563

Clays and the origin of life

<i>Period</i>	<i>Obligations</i>	
10/01/80-10/31/87	FY88:	TOTAL: \$510,811
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frankel, R. B.	HQ-EB/Rummel, J. D.	12-Chemistry
Hartman, H.	HQ-EB/Averner, M.	

NAGW 232 Massachusetts Institute of Technology 3564

A search for Earth-crossing asteroids

<i>Period</i>	<i>Obligations</i>	
09/01/81-10/31/88	FY88:	TOTAL: \$241,025
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Taff, L. G.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	

NAGW 442 Massachusetts Institute of Technology 3565

Investigations in X-ray astronomy based on analysis of data from the SAS-3 archive

<i>Period</i>	<i>Obligations</i>	
04/01/83-05/31/88	FY88:	TOTAL: \$700,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G. W.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Bunner, A. N.	

NAGW 474 Massachusetts Institute of Technology 3566

Interpretation of NIMBUS-7 and SAGE-1 aerosol and trace gas data using three-dimensional models

<i>Period</i>	<i>Obligations</i>	
04/01/83-09/30/88	FY88: \$85,000	TOTAL: \$480,404
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Prinn, R. G.	HQ-EE/Jackman, C. H.	31-Atmos Sci
	HQ-EE/Butler, D. M.	

NAGW 525 Massachusetts Institute of Technology 3567

Studies of global scale circulation processes of the Earth atmosphere

<i>Period</i>	<i>Obligations</i>	
11/01/83-03/31/89	FY88: \$150,000	TOTAL: \$970,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lindzen, R. S.	HQ-EE/Kakar, R. K.	31-Atmos Sci
Dole, R.	HQ-EE/Theon, J.	

NAGW 656 Massachusetts Institute of Technology 3568

Dynamics and structure of the planetary rings

<i>Period</i>	<i>Obligations</i>	
08/15/84-02/15/89	FY88: \$22,000	TOTAL: \$213,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
French, R. G.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NAGW 703 Massachusetts Institute of Technology 3569

Diagnostic studies in relation to the stratosphere troposphere exchange product

<i>Period</i>	<i>Obligations</i>	
02/01/85-12/31/88	FY88:	TOTAL: \$448,310
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Newell, R. E.	HQ-EE/Jackman, C. H.	31-Atmos Sci
	HQ-EE/Butler, D. M.	

NAGW 706 Massachusetts Institute of Technology 3570

Solar system dynamics

<i>Period</i>	<i>Obligations</i>	
02/01/85-01/31/89	FY88: \$45,006	TOTAL: \$160,389
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wisdom, J.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NAGW 732 Massachusetts Institute of Technology 3571

Global atmospheric gases experiment (GAGE)

<i>Period</i>	<i>Obligations</i>	
11/01/84-10/31/88	FY88: \$65,000	TOTAL: \$311,749
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Prinn, R. G.	HQ-EE/Jackman, C. H.	31-Atmos Sci
	HQ-EE/Butler, D. M.	

NAGW 770 Massachusetts Institute of Technology 3572

Optical investigation of comet Halley

<i>Period</i>	<i>Obligations</i>	
07/01/85-06/30/89	FY88:	TOTAL: \$176,770
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jewitt, D. C.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	

NAGW 821 Massachusetts Institute of Technology 3573

Kinetics of thermochemical gas-solid reactions important in the Venus sulfur cycle

<i>Period</i>	<i>Obligations</i>	
11/01/85-10/31/88	FY88: \$79,080	TOTAL: \$225,160
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fegley, B.	HQ-E/Rosendhal, J. D.	31-Atmos Sci
	HQ-E/Konkel, R. M.	

NAGW 988 Massachusetts Institute of Technology 3574

Finite element model of cardiac conduction processes

<i>Period</i>	<i>Obligations</i>	
11/01/86-10/31/88	FY88: \$146,323	TOTAL: \$271,323
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cohen, R. J.	HQ-EB/White, R. J.	56-Medical Sciences

NAGW 997 Massachusetts Institute of Technology 3575

Chemical models of the present and primordial atmospheres of the gas giant planets Jupiter, Saturn, Uranus and Neptune

<i>Period</i>	<i>Obligations</i>	
11/01/86-10/31/88	FY88: \$42,180	TOTAL: \$82,510
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fegley, B.	HQ-EL/Fox, K.	31-Atmos Sci
	HQ-EL/Quaide, W. L.	

NAGW 1048 Massachusetts Institute of Technology 3576

Determination of the general circulation

<i>Period</i>	<i>Obligations</i>	
05/01/87-10/31/88	FY88: \$78,710	TOTAL: \$229,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wunsch, C.	HQ-EE/Richman, J. G.	33-Oceanography
	HQ-EE/Wilson, W. S.	

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAGW 1077 Massachusetts Institute of Technology 3577

Mars tectonics and volcanism
Period *Obligations*
 06/01/87-05/31/88 FY88: TOTAL: \$48,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Solomon, S. C. HQ-EL/Scott, D. H. 11-Astronomy
 HQ-EL/Boyce, J. M.

NAGW 1078 Massachusetts Institute of Technology 3578

Chemical pathways from volcanic exhalates to dust storm particulates on Mars
Period *Obligations*
 06/01/87-05/31/89 FY88: \$50,000 TOTAL: \$100,155
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burns, R. G. HQ-EL/Underwood, J. R. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAGW 1092 Massachusetts Institute of Technology 3579

Preliminary testing of telescience concepts utilizing the space life sciences and astronomy test beds and the X ray timing Explorer
Period *Obligations*
 05/01/87-06/30/88 FY88: TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Young, L. R. HQ-E/Schmerling, E. R. 19-Phys Sci, NEC
 Lichtewburg, B. K. HQ-E/Burnett, P.
 Elliott, J.

NAGW 1139 Massachusetts Institute of Technology 3580

Southern Hemisphere galactic radiation map at 19.2 GHz
Period *Obligations*
 08/01/87-05/31/89 FY88: \$93,083 TOTAL: \$209,383
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cheng, E. S. HQ-EZ/Gilett, F. C. 11-Astronomy

NAGW 1168 Massachusetts Institute of Technology 3581

Observations of optical counterparts of gamma ray bursts
Period *Obligations*
 09/01/87-08/31/88 FY88: \$70,125 TOTAL: \$70,125
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Knight, F. HQ-EZ/Kaluzienski, L. J. 42-Astro Engr

NAGW 1209 Massachusetts Institute of Technology 3582

Detailed analysis of low energy plasma data
Period *Obligations*
 10/01/87-09/30/88 FY88: \$78,508 TOTAL: \$78,508
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McNutt, R. L. HQ-EL/Quaide, W. L. 19-Phys Sci, NEC
 HQ-EL/Parks, G.

NAGW 1272 Massachusetts Institute of Technology 3583

Experimental and theoretical determination of sea state bias in radar altimetry
Period *Obligations*
 12/01/87-02/28/89 FY88: \$229,900 TOTAL: \$229,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Melville, W. K. HQ-EE/Richman, J. G. 33-Oceanography
 HQ-EE/Wilson, W. S.

NAGW 1320 Massachusetts Institute of Technology 3584

Theoretical studies of dark matter/astrophysics
Period *Obligations*
 04/01/88-03/31/89 FY88: \$110,011 TOTAL: \$110,011
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Joss, P. C. HQ-ES/Mellott, M. M. 13-Physics
 HQ-ES/Jones, W. V.

NAGW 1335 Massachusetts Institute of Technology 3585

Center for space engineering research focused on controlled structures technology
Period *Obligations*
 06/01/88-02/28/89 FY88: \$500,000 TOTAL: \$500,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mar, J. W. HQ-RS/Hartman, S. C. 49-Engr, NEC
 Crawley, E. F.

NAGW 1377 Massachusetts Institute of Technology 3586

Analysis of ocular torsion data from SL 1D1
Period *Obligations*
 06/01/88-09/30/88 FY88: \$24,256 TOTAL: \$24,256
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Oman, C. M. HQ-EB/White, R. J. 19-Phys Sci, NEC

NAGW 1386 Massachusetts Institute of Technology 3587

Interferometric methods for the detection of planets of other solar systems
Period *Obligations*
 08/01/88-07/31/89 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burke, B. I. HQ-EL/Rahe, J. H. 11-Astronomy

NAGW 1450 Massachusetts Institute of Technology 3588

Photometry of pluto-charon mutual events
Period *Obligations*
 10/01/88-09/30/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Binzel, R. HQ-EL/Rahe, J. H. 11-Astronomy

NAS 3-24642 Massachusetts Institute of Technology 3589

Study electromagnetically driven flows in molten salts using laser velocimetry in a micro-gravity environment
Period *Obligations*
 12/05/85-01/15/89 FY88: TOTAL: \$70,381
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Szekely, J. LERC/Winsa, E. A. 47-Materials Engr
 LERC/Harf, F. H.

NAS 3-24649 Massachusetts Institute of Technology 3590

Conceptual design of a 100 kilowatt electrodynamic tether system
Period *Obligations*
 09/30/85-01/13/87 FY88: TOTAL: \$170,490
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sanchez, M. M. LERC/Kolecki, J. C. 13-Physics

NAS 3-24875 Massachusetts Institute of Technology 3591

Undercooling molten alloys in a microgravity environment
Period *Obligations*
 05/29/86-06/12/89 FY88: \$215,040 TOTAL: \$438,935
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shiohara, Y. LERC/Harf, F. H. 47-Materials Engr
 Shiohara, Y.

NAS 3-25074 Massachusetts Institute of Technology 3592

Space experiments on electromagnetically driven flow in metal melts
Period *Obligations*
 10/22/86-11/06/89 FY88: \$120,000 TOTAL: \$270,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Szekely, J. LERC/Harf, F. H. 47-Materials Engr
 Gutierrez, E.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAS 5-27591 Massachusetts Institute of Technology 3593
Cosmic Background Explorer (COBE) pre-launch science data and post-launch data analysis

<i>Period</i>	<i>Obligations</i>	
08/01/83-12/31/89	FY88: \$300,000	TOTAL: \$1,167,946
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weiss, R.	GSFC/Mather, J.	13-Physics

NAS 8-36748 Massachusetts Institute of Technology 3601
AXAF Bragg crystal spectrometer/high energy transmission grating spectrometer (BCS/HSTGS)

<i>Period</i>	<i>Obligations</i>	
01/14/86-12/31/88	FY88: \$934,451	TOTAL: \$2,724,451
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Canizares, C. R.	MSFC/Winkler, C. E.	11-Astronomy

NAS 5-28564 Massachusetts Institute of Technology 3594
Long wavelength photodiode development

<i>Period</i>	<i>Obligations</i>	
08/16/84-09/08/88	FY88:	TOTAL: \$511,975
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spears, D.	GSFC/Kostiuk, T. GSFC/Mumma, M. J.	42-Astro Engr

NAS 9-15343 Massachusetts Institute of Technology 3602
Definition of Spacelab I experiment on vestibular experiments

<i>Period</i>	<i>Obligations</i>	
04/04/77-01/01/89	FY88:	TOTAL: \$2,011,279
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	JSC/Harris, C. D.	59-Life Sci, NEC

NAS 5-29116 Massachusetts Institute of Technology 3595
X ray timing Explorer experiment study of the scanning shadow camera and on-board data system

<i>Period</i>	<i>Obligations</i>	
03/22/85-10/31/88	FY88: \$550,000	TOTAL: \$1,730,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bradt, H.	GSFC/Hibbard, W.	42-Astro Engr

NAS 9-16523 Massachusetts Institute of Technology 3603
Vestibular experiments in Spacelab

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/01/90	FY88: \$283,000	TOTAL: \$2,464,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	JSC/Harris, C. D.	59-Life Sci, NEC

NAS 5-29120 Massachusetts Institute of Technology 3596
Support for the NASA/GSFC crustal dynamics project

<i>Period</i>	<i>Obligations</i>	
03/25/85-01/24/89	FY88: \$1,144,752	TOTAL: \$6,537,280
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Niell, A. E.	GSFC/Wildes, W.	32-Geological Sci
Rogers, A. E.		

NAS 9-17377 Massachusetts Institute of Technology 3604
Study of plasma-gas interactions

<i>Period</i>	<i>Obligations</i>	
05/01/85-01/31/89	FY88: \$30,000	TOTAL: \$120,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yan, T. F.	JSC/Chang, F.	13-Physics

NAS 5-29325 Massachusetts Institute of Technology 3597
Wind spacecraft solar wind experiment

<i>Period</i>	<i>Obligations</i>	
05/12/86-12/31/88	FY88: \$45,991	TOTAL: \$85,991
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lazarus, A.	GSFC/Ogilvie, K.	11-Astronomy

NASW 3904 Massachusetts Institute of Technology 3605
Filament wound case technical assessment group

<i>Period</i>	<i>Obligations</i>	
11/15/83-06/30/88	FY88:	TOTAL: \$120,637
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mar, S. W.	HQ-MO/Bardos, R.	41-Aero Engr

NAS 5-30426 Massachusetts Institute of Technology 3598
Calibration of the gamma ray observatory egret instrument

<i>Period</i>	<i>Obligations</i>	
07/01/88-08/01/88	FY88: \$119,012	TOTAL: \$119,012
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nixon, G.	GSFC/Hartman, R. C.	11-Astronomy

NCA 2-327 Massachusetts Institute of Technology 3606
Atmospheric IR fluxes measurements and models

<i>Period</i>	<i>Obligations</i>	
06/01/88-09/30/88	FY88: \$6,434	TOTAL: \$6,434
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Newell, R. E.	ARC/Valero, F. P.	31-Atmos Sci

NAS 8-35018 Massachusetts Institute of Technology 3599
Turbine blade-tip seal clearance excitation forces

<i>Period</i>	<i>Obligations</i>	
06/03/83-09/25/91	FY88: \$60,000	TOTAL: \$621,034
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sanchez, M. M.	MSFC/Wilmer, G.	46-Mech Engr
Belgacem, J.	MSFC/Gross, L. A.	
Covert, E. E.		

NCC 2-231 Massachusetts Institute of Technology 3607
Critical review of food processing problems

<i>Period</i>	<i>Obligations</i>	
01/01/83-08/31/88	FY88: \$25,655	TOTAL: \$403,319
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karel, M.	ARC/MacElroy, R. D.	59-Life Sci, NEC

NAS 8-36604 Massachusetts Institute of Technology 3600
Research study entitled growth of gas crystals from the melt in a partially confined configuration

<i>Period</i>	<i>Obligations</i>	
03/15/85-13/14/89	FY88:	TOTAL: \$289,770
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gatos, H. C.	MSFC/Yates, I. C.	54-Env Biology

NCC 2-360 Massachusetts Institute of Technology 3608
Research in telerobotics

<i>Period</i>	<i>Obligations</i>	
06/01/85-10/31/88	FY88: \$55,000	TOTAL: \$260,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sheridan, T.	ARC/Friedland, P. E. ARC/Sims, M.	22-Computer Science

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NCC 2-366 Massachusetts Institute of Technology 3609
Improvement of helicopter blade dynamics by active control of the conventional swash plate

<i>Period</i>	<i>Obligations</i>	
11/01/85-10/31/88	FY88: \$55,771	TOTAL: \$145,075
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ham, N. D.	ARC/Lau, B. H.	41-Aero Engr
	ARC/Snyder, P. K.	

NCC 2-447 Massachusetts Institute of Technology 3610
Improvement of helicopter attitude stability by active control of the conventional swash plate

<i>Period</i>	<i>Obligations</i>	
11/01/86-10/31/88	FY88: \$55,100	TOTAL: \$70,110
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ham, N. D.	ARC/Talbot, P. D.	41-Aero Engr
	ARC/Balough, D.	

NCC 3-117 Massachusetts Institute of Technology 3611
Shear flow instability and turbulence

<i>Period</i>	<i>Obligations</i>	
10/01/88-02/01/89	FY88: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Landahl, M.	LERC/Goldstein, M. E.	41-Aero Engr

NGL 22-009-015 Massachusetts Institute of Technology 3612
Theoretical and experimental investigations of interplanetary medium and in gamma ray astronomy

<i>Period</i>	<i>Obligations</i>	
01/01/63-11/30/88	FY88: \$109,466	TOTAL: \$5,685,805
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lazarus, A. J.	HQ-EE/Mellott, M. M.	13-Physics
	HQ-EE/Jones, W. V.	

NGL 22-009-640 Massachusetts Institute of Technology 3613
Joint university research program future air transportation technological needs

<i>Period</i>	<i>Obligations</i>	
11/16/71-01/31/91	FY88: \$116,311	TOTAL: \$1,304,988
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R. W.	LARC/Morrell, F. R.	41-Aero Engr

NGR 22-009-277 Massachusetts Institute of Technology 3614
The prebiotic synthesis of polynucleotides and polynucleotide-directed polypeptides

<i>Period</i>	<i>Obligations</i>	
12/01/67-11/30/88	FY88: \$66,000	TOTAL: \$1,145,370
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rich, A.	HQ-EB/Rummel, J. D.	12-Chemistry
	HQ-EB/Averner, M.	

NGR 22-009-526 Massachusetts Institute of Technology 3615
Astronomy in the region between 1 mm to 0.1 mm wavelengths

<i>Period</i>	<i>Obligations</i>	
09/22/70-10/31/88	FY88: \$102,000	TOTAL: \$1,285,997
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meyer, S.	HQ-EZ/Bogges, N. W.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NGR 22-009-727 Massachusetts Institute of Technology 3616
Study in numerical modeling of atmospheric phenomena

<i>Period</i>	<i>Obligations</i>	
02/01/73-11/30/88	FY88: \$84,000	TOTAL: \$2,150,920
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, P. H.	GSFC/Suarez, M.	31-Atmos Sci

NGT 00-050-008 Massachusetts Institute of Technology 3617
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/86-10/31/87	FY88: \$458	TOTAL: \$18,458
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jewitt, D. C.	HQ-LE/Owens, F. C.	51-Biological Sci

NGT 00-050-039 Massachusetts Institute of Technology 3618
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/86-06/30/89	FY88: \$36,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meyer, S.	HQ-LE/Owens, F. C.	13-Physics

NGT 00-050-045 Massachusetts Institute of Technology 3619
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/86-05/31/89	FY88: \$36,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jordan, T. H.	HQ-LE/Owens, F. C.	13-Physics

NGT 00-050-077 Massachusetts Institute of Technology 3620
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/88	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L.	HQ-LE/Owens, F. C.	49-Engr, NEC

NGT 00-050-101 Massachusetts Institute of Technology 3621
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/86-05/31/89	FY88: \$36,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jordan, T. H.	HQ-LE/Owens, F. C.	13-Physics

NGT 00-050-103 Massachusetts Institute of Technology 3622
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/86-12/31/88	FY88: \$27,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Solomon, S. C.	HQ-LE/Owens, F. C.	13-Physics

NGT 00-050-145 Massachusetts Institute of Technology 3623
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sheridan, T.	HQ-XE/Owens, F. C.	46-Mech Engr

NGT 00-050-191 Massachusetts Institute of Technology 3624
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mcintosh, R. E.	HQ-XE/Owens, F. C.	45-Elec Engr

NGT 00-050-218 Massachusetts Institute of Technology 3625
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/87-01/31/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	HQ-XE/Owens, F. C.	49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NGT 00-050-292 Massachusetts Institute of Technology 3626

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Melville, W. K.	HQ-XE/Owens, F. C.	33-Oceanography

NGT 22-009-906 Massachusetts Institute of Technology 3635

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/20/85-09/19/88	FY88: \$18,000	TOTAL: \$52,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grimson, E.	HQ-LE/Owens, F. C.	69-Psych, NEC
Richards, W.		

NGT 00-050-323 Massachusetts Institute of Technology 3627

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Binzel, R.	HQ-XE/Owens, F. C.	13-Physics

NSG 3208 Massachusetts Institute of Technology 3636

Strut induced aerodynamic forging functions

<i>Period</i>	<i>Obligations</i>	
07/05/78-02/14/89	FY88: \$84,505	TOTAL: \$593,752
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greitzer, E. M.	LERC/Newman, F. A.	41-Aero Engr

NGT 00-070-012 Massachusetts Institute of Technology 3628

Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
03/01/87-02/28/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dubowsky, S.	HQ-LE/Owens, F. C.	46-Mech Engr

NSG 5113 Massachusetts Institute of Technology 3637

Research in stratospheric dynamics

<i>Period</i>	<i>Obligations</i>	
07/01/76-11/30/89	FY88: \$50,000	TOTAL: \$742,303
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, P. H.	GSFC/Rind, D.	31-Atmos Sci

NGT 00-070-027 Massachusetts Institute of Technology 3629

Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
08/01/87-07/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wurtman, R. J.	HQ-XE/Owens, F. C.	19-Phys Sci, NEC

NSG 7297 Massachusetts Institute of Technology 3638

Studies of stress history of terrestrial lithospheres

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/88	FY88: \$144,000	TOTAL: \$877,477
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Solomon, S. C.	HQ-EL/Underwood, J.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NGT 00-070-066 Massachusetts Institute of Technology 3630

Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
11/01/87-10/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, J. H.	HQ-XE/Owens, F. C.	46-Mech Engr

NSG 7331 Massachusetts Institute of Technology 3639

Crystal growth of device quality gallium arsenide in space

<i>Period</i>	<i>Obligations</i>	
04/01/79-11/30/88	FY88: \$330,000	TOTAL: \$3,722,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gatos, H. C.	HQ-EL/Crouch, R. K.	19-Phys Sci, NEC
	HQ-EL/Schmoll, K. S.	

NGT 00-070-067 Massachusetts Institute of Technology 3631

Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
11/01/87-10/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, J. H.	HQ-XE/Owens, F. C.	46-Mech Engr

NSG 7339 Massachusetts Institute of Technology 3640

X-ray balloon observations from the Northern and Southern Hemispheres

<i>Period</i>	<i>Obligations</i>	
04/01/77-11/30/88	FY88: \$290,000	TOTAL: \$2,259,109
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ricker, G. R.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Bunner, A. N.	

NGT 22-009-903 Massachusetts Institute of Technology 3632

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/85-08/31/88	FY88: \$18,000	TOTAL: \$52,440
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Prinn, R. G.	HQ-LE/Owens, F. C.	99-Multi-Discip

NSG 7526 Massachusetts Institute of Technology 3641

Portable high-speed photometry systems for observing occultations

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/88	FY88: \$62,840	TOTAL: \$602,168
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elliot, J. L.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	

NGT 22-009-904 Massachusetts Institute of Technology 3633

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/85-08/31/87	FY88:	TOTAL: \$17,842
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pettengill, G. H.	HQ-LE/Owens, F. C.	11-Astronomy

NSG 7604 Massachusetts Institute of Technology 3642

Electronic spectra of heated lunar materials: Quantifying remote sensed spectra of hot planetary surfaces

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/89	FY88: \$48,000	TOTAL: \$774,217
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burns, R. G.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NGT 22-009-905 Massachusetts Institute of Technology 3634

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/85-08/31/88	FY88: \$18,000	TOTAL: \$48,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Perez, L.	HQ-LE/Owens, F. C.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 7643 Massachusetts Institute of Technology 3643
Experimental and theoretical investigations in high energy astrophysics
Period *Obligations*
01/01/79-12/31/89 FY88: \$761,152 TOTAL: \$2,319,216
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clark, G. W. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
HQ-EZ/Bunner, A.

NSG 7645 Massachusetts Institute of Technology 3644
Materials processing research base
Period *Obligations*
10/01/79-09/30/88 FY88: \$551,700 TOTAL: \$5,814,078
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Latanision, R. M. HQ-EN/Crouch, R. 47-Materials Engr
HQ-EN/Sparks, D. R.

NAG 1-734 Northeastern University 3645
Simulation of airborne radar returns from ground clutter in vicinity of airports
Period *Obligations*
02/01/87-01/31/89 FY88: \$69,464 TOTAL: \$164,592
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Raemer, H. R. LARC/Bracalente, E. M. 45-Elec Engr
Rahgavan, R. LARC/Staton, L. D.

NAG 3-745 Northeastern University 3646
Microwave properties of fine magnetic particles
Period *Obligations*
11/25/86-12/09/88 FY88: \$100,702 TOTAL: \$186,545
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vittoria, C. LERC/Stearns, C. A. 13-Physics
LERC/Behrendt, D. R.

NAG 9-260 Northeastern University 3647
Direct measurement of atomic and molecular concentrations in boundary and surface layers of shocks
Period *Obligations*
10/01/87-04/01/89 FY88: \$14,982 TOTAL: \$14,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Willey, R. J. JSC/Grimaud, J. E. 13-Physics

NAG 9-314 Northeastern University 3648
Mechanistic model for catalytic recombination during aerobraking maneuvers
Period *Obligations*
09/01/88-08/31/89 FY88: \$12,391 TOTAL: \$12,391
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Willey, R. J. JSC/Goldstein, S. H. 19-Phys Sci, NEC

NAG 5-758 Regis College - Massachusetts 3649
An investigation of electric field measurements simultaneously at high and low altitudes
Period *Obligations*
04/15/86-10/14/87 FY88: TOTAL: \$35,563
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weimer, D. R. GSFC/Bullock, G. D. 19-Phys Sci, NEC

NAG 5-477 Tufts University 3650
Coordinated ultraviolet and radio wavelength observations of selected nearby dwarf stars
Period *Obligations*
10/01/84-09/30/87 FY88: TOTAL: \$37,329
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lang, K. R. GSFC/Kondo, Y. 11-Astronomy
Willson, R. F.

NAG 5-501 Tufts University 3651
Simultaneous Solar Maximum Mission and very large array observation of solar active regions
Period *Obligations*
02/01/85-09/30/89 FY88: \$36,855 TOTAL: \$121,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lang, K. R. GSFC/Bullock, G. D. 13-Physics
Willson, R. F. GSFC/Gurman, J. B.

NAG 2-344 University of Massachusetts - Amherst 3652
Super resolution observations of disks associated with young stars driving collimated outflows
Period *Obligations*
03/01/85-10/14/88 FY88: TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strom, S. E. ARC/Scargie, J. 13-Physics
HQ-EL/Black, D. C.

NAG 2-423 University of Massachusetts - Amherst 3653
Super resolution observations of disks associated with young stars driving collimated outflows
Period *Obligations*
10/01/86-03/31/89 FY88: \$24,639 TOTAL: \$45,919
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strom, S. E. ARC/Haughney, L. C. 11-Astronomy
Strom, K. M.

NAG 5-558 University of Massachusetts - Amherst 3654
Chromospheric activity in an X ray selected sample of young stars
Period *Obligations*
06/01/85-12/31/86 FY88: TOTAL: \$17,569
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strom, S. GSFC/Kondo, Y. 11-Astronomy
Strom, K. M.

NAG 9-75 University of Massachusetts - Amherst 3655
Archean tectonic style
Period *Obligations*
02/01/84-02/01/89 FY88: \$19,000 TOTAL: \$79,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McGill, G. E. JSC/Phinney, W. C. 32-Geological Sci

NAG 9-291 University of Massachusetts - Amherst 3656
Adaptation to transient postural perturbations
Period *Obligations*
04/01/88-04/01/89 FY88: \$47,188 TOTAL: \$47,188
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Andres, R. O. JSC/Kutyna, F. A. 56-Medical Sciences

NAGW 276 University of Massachusetts - Amherst 3657
The mapping of ocean surface currents using multifrequency microwave radars
Period *Obligations*
01/01/82-03/31/88 FY88: TOTAL: \$375,381
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McIntosh, R. E. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 436 University of Massachusetts - Amherst 3658
Boundary conditions for the paleoenvironment: Chemical and physical processes in the pre-solar nebula
Period *Obligations*
02/15/83-10/14/88 FY88: \$52,755 TOTAL: \$252,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Irvine, W. M. HQ-EB/Rummel, J. D. 32-Geological Sci
Schloerb, F. P. HQ-EB/Averner, M.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAGW 559 University of Massachusetts - Amherst 3659

Algorithm development to measure sea ice fraction with microwave radiometers

<i>Period</i>	<i>Obligations</i>	
12/01/83-12/31/88	FY88: \$207,316	TOTAL: \$662,773
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swift, C. T.	HQ-EE/Thomas, R. H.	33-Oceanography
	HQ-EE/Wilson, W. S.	

NAS 1-18310 University of Massachusetts - Amherst 3666

Development of theoretical models of integrated millimeter wave antennas

<i>Period</i>	<i>Obligations</i>	
08/20/86-08/20/89	FY88: \$15,000	TOTAL: \$185,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yngvesson, S.	LARC/Bailey, M. C.	29-Math/Cmputer, NEC
Schaubert, D.	LARC/Campbell, T. G.	
Stephan, K.		

NAGW 908 University of Massachusetts - Amherst 3660

Development of a validation model for the defense meteorological satellite program's special sensor microwave imager

<i>Period</i>	<i>Obligations</i>	
07/01/86-01/31/89	FY88:	TOTAL: \$114,297
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swift, C. T.	HQ-EE/Jezek, K. C.	33-Oceanography
	HQ-EE/Wilson, W. S.	

NAS 5-29385 University of Massachusetts - Amherst 3667

Development of I band airborne thinned array radiometer

<i>Period</i>	<i>Obligations</i>	
02/18/87-02/17/89	FY88:	TOTAL: \$119,007
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swift, C. T.	GSFC/Le Vine, D. M.	45-Elec Engr

NAGW 1079 University of Massachusetts - Amherst 3661

The giant polygons of Mars

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,203
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGill, G. E.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NGL 22-010-023 University of Massachusetts - Amherst 3668

Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
05/24/67-12/31/88	FY88:	TOTAL: \$955,390
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Irvine, W. M.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Rahe, J. H.	

NAGW 1112 University of Massachusetts - Amherst 3662

Microwave remote sensing of oceanic processes at the air sea interface

<i>Period</i>	<i>Obligations</i>	
06/01/87-02/28/89	FY88: \$155,046	TOTAL: \$264,974
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McIntosh, R. E.	HQ-EE/Richman, J. G.	33-Oceanography
	HQ-EE/Wilson, W. S.	

NGR 22-010-076 University of Massachusetts - Amherst 3669

Reconnaissance study of large geologic ring structures on Mars

<i>Period</i>	<i>Obligations</i>	
05/19/70-01/31/89	FY88: \$38,000	TOTAL: \$597,269
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGill, G. E.	HQ-EL/Underwood, J.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NAGW 1236 University of Massachusetts - Amherst 3663

Geologic mapping of southwest central MC 3 quadrangle Mars

<i>Period</i>	<i>Obligations</i>	
10/15/87-10/14/88	FY88: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Condit, C. D.	HQ-EL/Underwood, J.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NGT 00-050-038 University of Massachusetts - Amherst 3670

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/86-07/31/89	FY88: \$36,000	TOTAL: \$52,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swift, C. T.	HQ-LE/Owens, F. C.	45-Elec Engr

NAGW 1353 University of Massachusetts - Amherst 3664

Exobiological studies related to the VSSR Phobos mission

<i>Period</i>	<i>Obligations</i>	
06/01/88-05/31/89	FY88: \$20,412	TOTAL: \$20,412
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Irvine, W. M.	HQ-EB/Rummel, J. D.	59-Life Sci, NEC

NGT 00-050-161 University of Massachusetts - Amherst 3671

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/87-06/30/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hubert, J.	HQ-XE/Owens, F. C.	32-Geological Sci

NAGW 1405 University of Massachusetts - Amherst 3665

Models of cometary emission in the 18 cm OH transitions the observed behavior of comet Halley by a worldwide network of radio telescopes

<i>Period</i>	<i>Obligations</i>	
03/01/88-06/30/89	FY88: \$31,650	TOTAL: \$31,650
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schloerb, F. P.	HQ-EL/Fox, K.	11-Astronomy
	HQ-EL/Quaide, W. L.	

NGT 00-070-009 University of Massachusetts - Amherst 3672

Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
01/01/87-12/31/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Irvine, W. M.	HQ-LE/Owens, F. C.	13-Physics

NGT 00-070-037 University of Massachusetts - Amherst 3673

Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McIntosh, R. E.	HQ-XE/Owens, F. C.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAGW 1368 Wellesley College 3674
Dynamics and structure of planetary rings
Period *Obligations*
02/16/88-02/15/89 FY88: \$23,000 TOTAL: \$23,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
French, R. G. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NGT 22-005-900 Wentworth Institute of Technology 3675
Massachusetts pre-engineering program
Period *Obligations*
06/01/85-08/31/89 FY88: \$92,465 TOTAL: \$284,395
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mullins, R. T. HQ-U/White, B. 41-Aero Engr

NAG 3-610 Western New England College 3676
Mixer ejector program
Period *Obligations*
03/01/85-12/31/88 FY88: TOTAL: \$149,905
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Presz, W. M. LERC/Bishop, A. R. 41-Aero Engr

NSG 5376 Wheaton College 3677
Ultraviolet spectrophotometry of planetary nebulae
Period *Obligations*
07/01/79-02/28/89 FY88: \$28,000 TOTAL: \$121,696
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barker, T. GSFC/Kondo, Y. 11-Astronomy

NAG 5-1029 Williams College 3678
Mass loss from IUE observations of rapidly rotating hot stars
Period *Obligations*
12/15/87-12/14/88 FY88: \$7,500 TOTAL: \$7,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Friend, D. B. GSFC/Kondo, Y. 11-Astronomy

NAGW 1049 Williams College 3679
Involvement of calcium polyamines and phenyl propanoid derivatives in the regulation of plant growth and lignification in response to gravity
Period *Obligations*
02/15/87-10/31/88 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sloam, R. D. HQ-ER/Halstead, T. W. 51-Biological Sci

NAGW 1382 Williams College 3680
Amine oxidase and calcium-dependent peroxidase involvement in differential growth responses of gravistimulated plants
Period *Obligations*
07/01/88-06/30/89 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Slocum, R. D. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 9-69 Woods Hole Oceanographic Institution 3681
Helium isotope studies of diamonds and inclusions within diamonds
Period *Obligations*
02/01/84-06/01/89 FY88: \$33,000 TOTAL: \$145,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kurz, M. D. JSC/Phinney, W. C. 32-Geological Sci

NAGW 606 Woods Hole Oceanographic Institution 3682
Regulation of gethylated gas emission from coastal and inland salt gasses
Period *Obligations*
02/01/84-05/31/89 FY88: \$90,000 TOTAL: \$388,713
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dacey, J. H. HQ-EB/Averner, M. 51-Biological Sci
Wake-ham, S. G. HQ-EB/Devincenzi, D. L.
King, G. M.

NAGW 1024 Woods Hole Oceanographic Institution 3683
Global ocean wave spectral information from space
Period *Obligations*
12/01/86-07/31/88 FY88: TOTAL: \$44,874
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grabner, H. C. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1026 Woods Hole Oceanographic Institution 3684
Direct estimation of the geostrophic sea surface topography of the Gulf Stream
Period *Obligations*
01/01/87-07/31/88 FY88: TOTAL: \$33,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Joyce, T. M. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1314 Woods Hole Oceanographic Institution 3685
Average seasonal North Atlantic CO2 cycling
Period *Obligations*
04/01/88-03/31/89 FY88: \$75,432 TOTAL: \$75,432
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brewer, P. G. HQ-EE/Yoder, J. A. 33-Oceanography
Glover, D. M. HQ-EE/Wilson, S. W.

NAG 1-809 Worcester Polytechnic Institute 3686
The use of evidence flow graphs for performing validation and verification of expert systems
Period *Obligations*
08/06/87-11/05/88 FY88: TOTAL: \$29,997
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Green, P. E. LARC/Johnson, S. C. 22-Computer Science
Becker, L. A.

NAG 3-821 Worcester Polytechnic Institute 3687
Determination of corporate preception of safety related barriers to commercial and scientific uses of the space station
Period *Obligations*
09/20/87-02/19/89 FY88: TOTAL: \$50,119
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Custer, R. L. LERC/Friedman, R. 79-Soc Sci, NEC
Wilkes, J. M.

NAG 8-619 Worcester Polytechnic Institute 3688
Large zeolites grown in space
Period *Obligations*
02/01/87-05/31/88 FY88: TOTAL: \$10,818
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tuler, F. R. MSFC/Atkins, H. L. 47-Materials Engr

NAG 8-709 Worcester Polytechnic Institute 3689
Government support for technology development
Period *Obligations*
03/01/88-07/31/89 FY88: \$9,842 TOTAL: \$9,842
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tuler, F. R. MSFC/Snoddy, W. C. 79-Soc Sci, NEC

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 9-221 Worcester Polytechnic Institute 3690
Kinetics of ilmenite oxidation and reduction
Period *Obligations*
04/01/87-11/01/88 FY88: \$31,000 TOTAL: \$81,000
Prin. Invest. NASA Tech. Officer CASE Category
Sacco, A. JSC/Roberts, B. 12-Chemistry

NAG 5-802 Michigan State University 3697
Spectrophotometric synthesis study of a selected eclipsing binary
Period *Obligations*
07/15/86-07/14/88 FY88: TOTAL: \$11,802
Prin. Invest. NASA Tech. Officer CASE Category
Linnell, A. P. GSFC/Kondo, Y. 11-Astronomy

NAGW 974 Worcester Polytechnic Institute 3691
To determine the feasibility of establishing a center for fire safety design at Worcester, Massachusetts
Period *Obligations*
10/01/86-12/31/87 FY88: TOTAL: \$119,555
Prin. Invest. NASA Tech. Officer CASE Category
Custer, R. L. HQ-IC/Oran, W. A. 43-Chem Engr
HQ-IC/Brown, J.

NAG 5-908 Michigan State University 3698
Denitrification nitric oxide carbon dioxide and soil moisture dynamics evaluated at the landscape level
Period *Obligations*
05/01/87-04/30/88 FY88: TOTAL: \$32,970
Prin. Invest. NASA Tech. Officer CASE Category
Tiedje, J. M. GSFC/Levine, E. R. 39-Env Sci, NEC
Groffman, P. M. GSFC/Gurney, R. J.

NAGW 97 Michigan State University 3699
An attempt to localize and identify the gravity sensing mechanism of plants
Period *Obligations*
08/01/80-10/31/88 FY88: \$55,000 TOTAL: \$515,067
Prin. Invest. NASA Tech. Officer CASE Category
Bandurski, R. S. HQ-EB/Halstead, T. W. 51-Biological Sci

MICHIGAN

NAG 2-362 Michigan State University 3692
Effects of micro-gravity on growth hormone concentration and distribution in plants
Period *Obligations*
07/01/85-10/31/88 FY88: \$51,816 TOTAL: \$203,586
Prin. Invest. NASA Tech. Officer CASE Category
Bandurski, R. S. ARC/Winget, C. M. 51-Biological Sci
ARC/Ballard, R. W.

NAGW 882 Michigan State University 3700
Geotropism in arabidopsis thaliana; A genetic approach
Period *Obligations*
04/01/86-03/31/89 FY88: \$50,000 TOTAL: \$140,000
Prin. Invest. NASA Tech. Officer CASE Category
Poff, K. L. HQ-EB/Halstead, T. 51-Biological Sci

NAG 3-595 Michigan State University 3693
Structural vibrational and electronic properties of intercalated graphite fibers
Period *Obligations*
01/02/85-10/01/88 FY88: TOTAL: \$105,000
Prin. Invest. NASA Tech. Officer CASE Category
Solin, S. A. LERC/Gaier, J. 13-Physics

NAS 5-29334 Michigan State University 3701
The research addresses techniques for monitoring evapotranspiration using satellite digital data and meteorological data from a sparse ground network
Period *Obligations*
05/15/86-05/15/87 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Bartholic, J. GSFC/Nelson, R. F. 19-Phys Sci, NEC

NAG 3-670 Michigan State University 3694
Novel high melting thermally stable organic compound
Period *Obligations*
11/15/85-05/09/89 FY88: \$61,585 TOTAL: \$180,841
Prin. Invest. NASA Tech. Officer CASE Category
Hart, H. LERC/Meador, M. A. 12-Chemistry

NGT 00-050-241 Michigan State University 3702
NASA graduate student researchers program
Period *Obligations*
09/15/87-09/14/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Poff, K. L. HQ-XE/Owens, F. C. 19-Phys Sci, NEC

NAG 3-760 Michigan State University 3695
Generation and diagnostics of suspended high power microwave discharges
Period *Obligations*
01/30/87-01/28/89 FY88: \$75,000 TOTAL: \$125,000
Prin. Invest. NASA Tech. Officer CASE Category
Smussen, J. A. LERC/Power, J. L. 13-Physics
Hawley, M.

NAG 1-717 Michigan Technological University 3703
Analysis of wind shear turbulence
Period *Obligations*
12/01/86-08/31/88 FY88: TOTAL: \$31,752
Prin. Invest. NASA Tech. Officer CASE Category
Trevino, G. LARC/McKissick, B. T. 46-Mech Engr
LARC/Bowles, R. L.

NAG 3-853 Michigan State University 3696
Stratified charge rotary engine combustion studies
Period *Obligations*
12/24/87-12/23/88 FY88: \$174,717 TOTAL: \$174,717
Prin. Invest. NASA Tech. Officer CASE Category
Shock, H. J. LERC/Nguyen, H. L. 46-Mech Engr

NAG 3-216 Michigan Technological University 3704
Structure property effects of tantalum additions to nickel-base superalloys
Period *Obligations*
10/20/81-04/18/97 FY88: \$24,956 TOTAL: \$372,678
Prin. Invest. NASA Tech. Officer CASE Category
Heckel, R. W. LERC/Dreshfield, R. L. 12-Chemistry
Pletka, B. J. LERC/MacKay, R. A.

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAG 3-519 Michigan Technological University 3705
Raman structural studies of the nickel electrode
Period *Obligations*
02/20/84-02/27/89 FY88: \$35,000 TOTAL: \$155,013
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cornilsen, B. C. LERC/Reid, M. A. 49-Engr, NEC
LERC/O'donnell, P.

NAG 3-560 Michigan Technological University 3706
Development and prevention of channel segregation during alloy solidification
Period *Obligations*
06/05/84-07/22/89 FY88: \$62,000 TOTAL: \$286,198
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hellawell, A. LERC/De Grah, H. 47-Materials Engr
Sarazin, J. R. LERC/Gray, H.

NAG 3-711 Michigan Technological University 3707
Film condensation under microgravity conditions
Period *Obligations*
03/10/86-03/07/89 FY88: \$70,361 TOTAL: \$209,273
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suryanarayana, N. V. LERC/McQuillen, J. 46-Mech Engr
Narain, A.

NAG 3-812 Michigan Technological University 3708
Adaptation of MIT cycle simulation code to the desk top computer
Period *Obligations*
07/15/87-11/15/87 FY88: TOTAL: \$5,516
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arici, O. LERC/Schock, H. J. 46-Mech Engr

NGT 23-001-800 Michigan Technological University 3709
NASA graduate student researchers program
Period *Obligations*
06/01/84-08/31/87 FY88: TOTAL: \$51,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bomhorst, T. J. HQ-LB/Owens, F. C. 32-Geological Sci

NAG 1-296 University of Michigan - Ann Arbor 3710
The performance and evaluation of real-time multicomputer control systems
Period *Obligations*
09/01/82-12/31/88 FY88: \$130,000 TOTAL: \$707,451
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shin, K. G. LARC/Butler, R. W. 22-Computer Science
Kim, B. K. LARC/Lupton, A. O.

NAG 1-492 University of Michigan - Ann Arbor 3711
Design and evaluation of flight crucial control computers
Period *Obligations*
09/01/84-04/30/89 FY88: \$30,000 TOTAL: \$119,884
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shin, K. G. LARC/Butler, R. W. 22-Computer Science
LARC/Finelli, G. B.

NAG 1-539 University of Michigan - Ann Arbor 3712
Application of climate models to study the time and space variability of the Earth radiation budget
Period *Obligations*
01/01/85-11/30/87 FY88: TOTAL: \$37,496
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bartman, F. L. LARC/Smith, G. L. 31-Atmos Sci

NAG 1-555 University of Michigan - Ann Arbor 3713
Investigation of optical guiding in strained semiconductors
Period *Obligations*
01/03/85-01/31/88 FY88: TOTAL: \$154,881
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhattacharya, P. K. LARC/Clark, I. O. 45-Elec Engr
LARC/Fripp, A. L.

NAG 1-607 University of Michigan - Ann Arbor 3714
Micro and macro approach to tough polymers for composites
Period *Obligations*
07/12/85-03/31/89 FY88: \$50,000 TOTAL: \$220,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yee, A. F. LARC/Johnston, N. J. 47-Materials Engr
LARC/Hinkley, J. A.

NAG 1-817 University of Michigan - Ann Arbor 3715
High resolution Doppler lidar
Period *Obligations*
10/01/87-03/31/89 FY88: \$150,000 TOTAL: \$265,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hays, P. B. LARC/Maddrea, G. L. 13-Physics
Abreu, V. J. LARC/McMaster, L. R.
Kennedy, B. C.

NAG 1-869 University of Michigan - Ann Arbor 3716
An adaptive multi grid code for fluid dynamics based on genuinely multi dimensional concepts
Period *Obligations*
03/24/88-03/23/89 FY88: \$47,317 TOTAL: \$47,317
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Leer, B. LARC/Thomas, J. L. 21-Mathematics
LARC/Anderson, W. K.

NAG 1-887 University of Michigan - Ann Arbor 3717
Distributed fault-tolerant architectures
Period *Obligations*
06/01/88-05/31/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shin, K. C. LARC/EIKs, C. R. 22-Computer Science
LARC/Bryant, W. H.

NAG 2-333 University of Michigan - Ann Arbor 3718
Computer assisted analysis and modeling of gravity receptors
Period *Obligations*
02/01/85-02/28/87 FY88: TOTAL: \$222,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ross, M. D. ARC/Daunton, N. G. 51-Biological Sci
ARC/Corcoran, M. L.

NAG 2-350 University of Michigan - Ann Arbor 3719
Intelligent multi sensor integration
Period *Obligations*
05/01/85-05/31/88 FY88: TOTAL: \$256,668
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Volz, R. A. ARC/Friedland, P. E. 22-Computer Science
Jain, R. ARC/Bull, J. S.
Weymouth, T.

NAG 2-440 University of Michigan - Ann Arbor 3720
Requirements for an integrated simulation program
Period *Obligations*
01/01/87-11/30/88 FY88: \$45,063 TOTAL: \$70,063
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clipson, C. W. ARC/Harrison, R. L. 69-Psych, NEC
ARC/Cohen, M. M.

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAG 2-488 University of Michigan - Ann Arbor 3721
Interdisciplinary scientist on the Pioneer Venus mission
Period *Obligations*
01/01/88-12/31/88 FY88: \$144,893 TOTAL: \$144,893
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Donahue, T. ARC/Fimmel, R. O. 11-Astronomy
ARC/Craig, R. A.

NAG 3-850 University of Michigan - Ann Arbor 3729
Assessment of use of slush gelled and gelled slush cryogenic propellants in space missions
Period *Obligations*
12/05/87-12/04/88 FY88: \$103,496 TOTAL: \$103,496
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sonntag, R. E. LERC/Hardy, T. L. 43-Chem Engr
Kavcany, M. LERC/Dewitt, R. L.

NAG 2-491 University of Michigan - Ann Arbor 3722
Interdisciplinary scientist Pioneer Venus missions
Period *Obligations*
10/01/87-10/31/88 FY88: \$135,277 TOTAL: \$135,277
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nagy, A. ARC/Fimmel, R. O. 11-Astronomy
ARC/Craig, R. A.

NAG 3-903 University of Michigan - Ann Arbor 3730
Capillary convection with crystal growth
Period *Obligations*
05/16/88-05/15/89 FY88: \$51,000 TOTAL: \$51,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yang, W. J. LERC/Chai, A. T. 19-Phys Sci, NEC

NAG 2-518 University of Michigan - Ann Arbor 3723
Investigation of some aspects of the solar wind Venus interactions
Period *Obligations*
09/15/88-09/14/89 FY88: \$40,355 TOTAL: \$40,355
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fontheim, E. G. ARC/Lasher, L. E. 11-Astronomy
ARC/Fimmel, R. O.

NAG 5-230 University of Michigan - Ann Arbor 3731
Intercomparison measurement between rocket-borne and balloon-borne chemiluminescent nitricoxide payloads
Period *Obligations*
04/01/82-10/31/87 FY88: TOTAL: \$466,443
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horvath, J. J. HQ-EE/Hudson, R. D. 31-Atmos Sci
Shetter, R. E. HQ-EE/Margitan, J. J.

NAG 2-541 University of Michigan - Ann Arbor 3724
A new technique for simulating composite material and its application to electromagnetics in conjunction with the conjugate gradient FFT method
Period *Obligations*
09/01/88-08/31/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Volakis, J. L. ARC/Woo, A. C. 45-Elec Engr

NAG 5-419 University of Michigan - Ann Arbor 3732
Research relative to advanced langmun probes
Period *Obligations*
05/01/84-01/31/89 FY88: TOTAL: \$99,233
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carignan, G. R. GSFC/Brace, L. H. 31-Atmos Sci

NAG 3-589 University of Michigan - Ann Arbor 3725
Study of forced convection boiling under reduced gravity
Period *Obligations*
01/02/85-01/29/89 FY88: \$69,982 TOTAL: \$277,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Merte, H. LERC/McQuillen, J. 46-Mech Engr

NAG 5-465 University of Michigan - Ann Arbor 3733
Dynamic and thermodynamic analyses of the neutral upper atmosphere
Period *Obligations*
10/01/84-12/31/88 FY88: \$164,400 TOTAL: \$1,341,575
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hays, P. B. GSFC/Bullock, G. D. 19-Phys Sci, NEC
Killeen, T. L. GSFC/Hoffman, R.

NAG 3-618 University of Michigan - Ann Arbor 3726
Microwave and millimeter wave power generation
Period *Obligations*
02/28/85-06/26/88 FY88: TOTAL: \$143,370
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haddad, G. I. LERC/Dickman, J. E. 45-Elec Engr
East, J. R.

NAG 5-472 University of Michigan - Ann Arbor 3734
Dynamics Explorer investigations
Period *Obligations*
10/01/84-11/30/88 FY88: \$36,000 TOTAL: \$448,241
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nagy, A. F. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAG 3-661 University of Michigan - Ann Arbor 3727
Structural optimization methods applied to the analysis and computational solution of contact problems in aerospace engines and mechanisms
Period *Obligations*
10/05/85-03/29/89 FY88: \$49,903 TOTAL: \$194,364
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kikuchi, N. LERC/Steinetz, B. M. 41-Aero Engr
Taylor, J. E. LERC/Kiraly, L. J.

NAG 5-480 University of Michigan - Ann Arbor 3735
Characterization of the microwave extinction properties of vegetation canopies
Period *Obligations*
11/01/84-02/28/89 FY88: \$87,000 TOTAL: \$363,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ulaby, F. T. GSFC/Oseroff, H. 55-Agriculture Sci

NAG 3-663 University of Michigan - Ann Arbor 3728
Fundamental study of nucleate pool boiling under microgravity
Period *Obligations*
10/05/85-07/06/89 FY88: \$199,983 TOTAL: \$439,972
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Merte, H., Jr. LERC/Chiaromonte, F. P. 46-Mech Engr
Weinzierl, A.

NAG 5-482 University of Michigan - Ann Arbor 3736
Neutral composition studies of thermospheric processes
Period *Obligations*
10/01/84-12/31/88 FY88: \$20,000 TOTAL: \$462,540
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carignan, G. R. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAG 5-552 University of Michigan - Ann Arbor 3737
Observations of narrow lined Seyfert galaxies
Period Obligations
06/01/85-12/31/88 FY88: TOTAL: \$35,476
Prin. Invest. NASA Tech. Officer CASE Category
MacAlpine, G. M. GSFC/Kondo, Y. 11-Astronomy
Eastman, R. G.

NAG 5-1030 University of Michigan - Ann Arbor 3745
Ultraviolet observations of the aurora and electroglow emissions from Neptune
Period Obligations
01/01/88-08/31/89 FY88: \$48,734 TOTAL: \$48,734
Prin. Invest. NASA Tech. Officer CASE Category
Clarke, T. J. GSFC/Kondo, Y. 11-Astronomy

NAG 5-565 University of Michigan - Ann Arbor 3738
The interaction of the solar wind with comet geocobine-zinnec
Period Obligations
07/01/85-02/29/88 FY88: TOTAL: \$62,889
Prin. Invest. NASA Tech. Officer CASE Category
Cravens, T. GSFC/Wales, R. O. 11-Astronomy
Gombosi, T. I.
Nagy, A. F.

NAG 8-594 University of Michigan - Ann Arbor 3746
Supernova remnants in the forbidden coronal iron lines 5303 and 6374
Period Obligations
07/01/86-10/31/87 FY88: TOTAL: \$13,832
Prin. Invest. NASA Tech. Officer CASE Category
Teske, R. G. MSFC/Potter, P. Y. 11-Astronomy

NAG 5-803 University of Michigan - Ann Arbor 3739
Advanced rod central system for quadrupole mass spectrometry application
Period Obligations
07/15/86-10/14/87 FY88: TOTAL: \$25,035
Prin. Invest. NASA Tech. Officer CASE Category
Carignan, G. R. GSFC/Way, S. H. 45-Elec Engr
Block, B.

NAG 8-741 University of Michigan - Ann Arbor 3747
Visible Doppler lidar
Period Obligations
08/01/88-07/31/89 FY88: \$150,119 TOTAL: \$150,119
Prin. Invest. NASA Tech. Officer CASE Category
Hays, P. B. MSFC/Bilbro, J. W. 49-Engr, NEC
Abreu, V. J. MSFC/Jones, W. D.

NAG 5-843 University of Michigan - Ann Arbor 3740
Dielectric properties of rocks and minerals
Period Obligations
09/15/86-11/15/88 FY88: \$25,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. GSFC/Garvin, J. B. 32-Geological Sci

NAG 9-139 University of Michigan - Ann Arbor 3748
Principles of diagrammatic displays of engineered systems
Period Obligations
04/01/86-09/01/88 FY88: TOTAL: \$148,479
Prin. Invest. NASA Tech. Officer CASE Category
Kieras, D. JSC/Malin, J. T. 49-Engr, NEC

NAG 5-844 University of Michigan - Ann Arbor 3741
Plasma density bulge in front of Venus bow shock
Period Obligations
09/15/86-08/31/88 FY88: TOTAL: \$54,690
Prin. Invest. NASA Tech. Officer CASE Category
Fontheim, E. G. GSFC/Brace, L. H. 19-Phys Sci, NEC

NAGW 15 University of Michigan - Ann Arbor 3749
Study in planetary aeronomy
Period Obligations
12/01/79-11/30/88 FY88: \$49,553 TOTAL: \$557,516
Prin. Invest. NASA Tech. Officer CASE Category
Cravens, T. E. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAG 5-852 University of Michigan - Ann Arbor 3742
Mesoscale monitoring of the soil freeze thru boundary from orbital microwave radiometry
Period Obligations
10/01/86-02/28/89 FY88: \$110,000 TOTAL: \$237,000
Prin. Invest. NASA Tech. Officer CASE Category
Dobson, C. GSFC/Oseroff, H. 19-Phys Sci, NEC
Ulaby, F.
Kuhn, W.

NAGW 34 University of Michigan - Ann Arbor 3750
Investigation of the negative geotropic response in geosensitive pulvini of the oat plant (avena sativa)
Period Obligations
02/01/80-10/31/89 FY88: \$55,499 TOTAL: \$456,403
Prin. Invest. NASA Tech. Officer CASE Category
Kaufman, P. B. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 5-1001 University of Michigan - Ann Arbor 3743
Observations of the unique FE II emitting quasars
Period Obligations
09/15/87-09/14/89 FY88: \$8,500 TOTAL: \$20,200
Prin. Invest. NASA Tech. Officer CASE Category
Gaskell, C. M. GSFC/Kondo, Y. 11-Astronomy

NAGW 176 University of Michigan - Ann Arbor 3751
Interaction of biota and atmosphere: The geological record
Period Obligations
04/01/81-12/31/88 FY88: \$105,992 TOTAL: \$748,398
Prin. Invest. NASA Tech. Officer CASE Category
Walker, J. C. HQ-EB/Rummel, J. D. 12-Chemistry
HQ-EB/Averner, M.

NAG 5-1024 University of Michigan - Ann Arbor 3744
Shared human telerobot central and time delay
Period Obligations
12/01/87-11/30/88 FY88: \$74,997 TOTAL: \$74,997
Prin. Invest. NASA Tech. Officer CASE Category
Volz, R. A. GSFC/Andary, J. F. 39-Env Sci, NEC
Conway, L.
Walker, M.

NAGW 312 University of Michigan - Ann Arbor 3752
Atmospheric effects of auroral precipitation on Jupiter
Period Obligations
04/01/82-08/31/88 FY88: TOTAL: \$164,043
Prin. Invest. NASA Tech. Officer CASE Category
Cravens, T. E. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAGW 496 University of Michigan - Ann Arbor 3753
Visible airglow experiment data analysis
Period *Obligations*
06/01/83-05/31/89 FY88: \$65,100 TOTAL: \$358,598
Prin. Invest. NASA Tech. Officer CASE Category
Hays, P. B. HQ-ES/Mellott, M. M. 13-Physics
Abreu, V. J. HQ-ES/Parks, G. K.

NAGW 1296 University of Michigan - Ann Arbor 3761
Superconducting magnet instrument for light isotopes
Period *Obligations*
04/01/88-04/30/89 FY88: \$100,000 TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
Tarle, G. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Jones, W. V.

NAGW 631 University of Michigan - Ann Arbor 3754
Participation in the Mars 88 mission
Period *Obligations*
06/01/84-12/31/88 FY88: TOTAL: \$151,940
Prin. Invest. NASA Tech. Officer CASE Category
Nagy, A. F. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1334 University of Michigan - Ann Arbor 3762
Center for rearmillimeter wave communication and sensing technology
Period *Obligations*
06/01/88-02/28/89 FY88: \$500,000 TOTAL: \$500,000
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. HQ-RS/Hartman, S. C. 49-Engr, NEC

NAGW 733 University of Michigan - Ann Arbor 3755
Application of radar remote sensing to forest biome discrimination, classification and assessment
Period *Obligations*
03/01/85-02/28/89 FY88: \$150,000 TOTAL: \$670,000
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. HQ-EE/Miller, T. L. 39-Env Sci, NEC

NAGW 1366 University of Michigan - Ann Arbor 3763
Modeling of cometary atmospheres
Period *Obligations*
07/01/88-06/30/89 FY88: \$57,724 TOTAL: \$57,724
Prin. Invest. NASA Tech. Officer CASE Category
Gombosi, T. I. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 938 University of Michigan - Ann Arbor 3756
Absolute differential excitation cross section measurements of water vapor by electron impact
Period *Obligations*
07/01/86-06/30/88 FY88: TOTAL: \$71,700
Prin. Invest. NASA Tech. Officer CASE Category
Shyn, T. W. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1367 University of Michigan - Ann Arbor 3764
Development of physically based models for estimation of above ground tree biomass in old field loblolly pine forests using airborne SAR
Period *Obligations*
07/01/88-06/30/89 FY88: \$43,115 TOTAL: \$43,115
Prin. Invest. NASA Tech. Officer CASE Category
Dobson, M. C. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
Ulaby, F. T. HQ-EE/Ruzek, M. J.
Kasischke, E. S.

NAGW 990 University of Michigan - Ann Arbor 3757
Volatile abundance in the atmosphere of Mars
Period *Obligations*
11/15/86-11/14/88 FY88: \$10,024 TOTAL: \$17,030
Prin. Invest. NASA Tech. Officer CASE Category
Atreya, S. K. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1409 University of Michigan - Ann Arbor 3765
Interdisciplinary scientist phobos mission
Period *Obligations*
07/01/88-06/30/89 FY88: \$34,741 TOTAL: \$34,741
Prin. Invest. NASA Tech. Officer CASE Category
Nagy, A. F. HQ-EL/Brinton, H. C. 13-Physics

NAGW 1101 University of Michigan - Ann Arbor 3758
Extended ecosystems signatures with application to EOS synergism requirements
Period *Obligations*
06/01/87-05/31/89 FY88: \$304,769 TOTAL: \$529,769
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC

NAS 1-17008 University of Michigan - Ann Arbor 3766
High-toughness graphite/epoxy composite material experiment for the long duration exposure facility (LDEF)
Period *Obligations*
07/29/82-11/30/91 FY88: TOTAL: \$37,394
Prin. Invest. NASA Tech. Officer CASE Category
Felbeck, D. K. LARC/Kinard, W. H. 47-Materials Engr

NAGW 1158 University of Michigan - Ann Arbor 3759
Gaseous cometary coronae
Period *Obligations*
10/01/87-09/30/89 FY88: TOTAL: \$48,185
Prin. Invest. NASA Tech. Officer CASE Category
Atreya, S. K. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAS 1-17820 University of Michigan - Ann Arbor 3767
Manufacture of the cr-39 and rodyne-p plastic sheets required for test and for flight heavy nuclei collection (HNC) detector stacks on the LDEF mission II
Period *Obligations*
09/28/84-12/15/88 FY88: TOTAL: \$1,044,245
Prin. Invest. NASA Tech. Officer CASE Category
Tarle, G. LARC/Jones, J. L. 11-Astronomy

NAGW 1185 University of Michigan - Ann Arbor 3760
Analysis of the Voyager ultraviolet occultation experiments
Period *Obligations*
10/01/87-09/30/89 FY88: TOTAL: \$45,004
Prin. Invest. NASA Tech. Officer CASE Category
Atreya, S. HQ-EL/Quaide, W. L. 11-Astronomy
HQ-EL/Brinton, H. C.

NAS 1-18290 University of Michigan - Ann Arbor 3768
Halogen occultation experiment haloe
Period *Obligations*
05/08/86-05/08/93 FY88: \$90,000 TOTAL: \$261,841
Prin. Invest. NASA Tech. Officer CASE Category
Drayson, S. R. LARC/Sullivan, E. M. 31-Atmos Sci
LARC/Russell, J. M., III

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAS 2-12314 University of Michigan - Ann Arbor 3769
 Interdisciplinary scientist Pioneer Venus mission
Period Obligations
 10/01/85-12/31/87 FY88: \$1,724 TOTAL: \$261,909
Prin. Invest. NASA Tech. Officer CASE Category
 Donahue, T. ARC/Craig, R. A. 11-Astronomy
 ARC/Fimmel, R.

NAS 5-30119 University of Michigan - Ann Arbor 3777
 Scientific interpretation of Galileo probe mass spectrometer data
Period Obligations
 09/01/87-08/31/90 FY88: TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
 Atreya, S. K. GSFC/Niemann, B. 31-Atmos Sci

NAS 2-12315 University of Michigan - Ann Arbor 3770
 Interdisciplinary scientist Pioneer Venus mission
Period Obligations
 10/01/85-12/31/87 FY88: \$14,653 TOTAL: \$238,860
Prin. Invest. NASA Tech. Officer CASE Category
 Nagy, A. F. ARC/Craig, R. A. 11-Astronomy
 ARC/Fimmel, R.

NAS 5-30120 University of Michigan - Ann Arbor 3778
 Scientific data analysis or data interpretation of a PMS data
Period Obligations
 09/01/87-08/31/90 FY88: TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
 Donahue, T. M. GSFC/Niemann, H. B. 31-Atmos Sci

NAS 3-25366 University of Michigan - Ann Arbor 3771
 Cryogenic tank venting and dumping
Period Obligations
 09/12/88-09/11/93 FY88: \$75,000 TOTAL: \$75,000
Prin. Invest. NASA Tech. Officer CASE Category
 Kaviany, M. LERC/Aydelott, J. C. 49-Engr, NEC

NAS 5-30336 University of Michigan - Ann Arbor 3779
 Mesosphere lower thermosphere Explorer Lyman mission
Period Obligations
 06/02/88-07/02/89 FY88: \$145,000 TOTAL: \$145,000
Prin. Invest. NASA Tech. Officer CASE Category
 Hays, P. GSFC/Mayer, E. 11-Astronomy

NAS 5-25031 University of Michigan - Ann Arbor 3772
 Develop, fabricate, test, and support hardware for the San Marco/wind and temperature experiment
Period Obligations
 05/05/78-08/31/88 FY88: \$298,097 TOTAL: \$1,602,726
Prin. Invest. NASA Tech. Officer CASE Category
 Carignan, G. R. GSFC/Spencer, N. W. 31-Atmos Sci
 Maurer, J. M. GSFC/Adkins, R.

NAS 8-32661 University of Michigan - Ann Arbor 3780
 Spacelab outgassing
Period Obligations
 09/20/77-02/22/87 FY88: TOTAL: \$403,601
Prin. Invest. NASA Tech. Officer CASE Category
 Carignan, G. R. MSFC/Miller, E. R. 39-Env Sci, NEC
 MSFC/Strauss, E. M.

NAS 5-27751 University of Michigan - Ann Arbor 3773
 High resolution Doppler imager (HRDI) for UARS
Period Obligations
 10/01/83-06/01/89 FY88: \$3,162,453 TOTAL: \$21,032,092
Prin. Invest. NASA Tech. Officer CASE Category
 Hays, P. GSFC/Honeycutt, G. 31-Atmos Sci
 GSFC/Donley, J.

NAS 8-37108 University of Michigan - Ann Arbor 3781
 Research on orbital plasma electrodynamics
Period Obligations
 04/14/87-10/25/91 FY88: \$4,600 TOTAL: \$9,200
Prin. Invest. NASA Tech. Officer CASE Category
 Samir, U. MSFC/Duncan, B. 31-Atmos Sci
 MSFC/Holder, R.

NAS 5-28755 University of Michigan - Ann Arbor 3774
 LANDSAT investigation entitled estimating population size of pygoscelid penguins from TM
Period Obligations
 07/18/85-11/18/87 FY88: TOTAL: \$70,155
Prin. Invest. NASA Tech. Officer CASE Category
 Olsen, C. E. GSFC/Oseroff, H. 51-Biological Sci

NASW 4200 University of Michigan - Ann Arbor 3782
 A compact Doppler interferometer for missions in the planetary program instrument definition and development
Period Obligations
 12/15/86-12/14/88 FY88: \$110,000 TOTAL: \$160,000
Prin. Invest. NASA Tech. Officer CASE Category
 Killeen, T. L. HQ-EL/Quaide, W. 32-Geological Sci
 HQ-EL/Evans, L.

NAS 5-29344 University of Michigan - Ann Arbor 3775
 Field support for the Galileo probe mass spectrometer (GPMS/electronics)
Period Obligations
 04/16/86-06/15/91 FY88: \$32,000 TOTAL: \$120,016
Prin. Invest. NASA Tech. Officer CASE Category
 Carignan, G. GSFC/Way, S. 31-Atmos Sci

NCA 2-136 University of Michigan - Ann Arbor 3783
 New generation software for applied mechanics problems
Period Obligations
 06/15/86-06/14/88 FY88: TOTAL: \$50,245
Prin. Invest. NASA Tech. Officer CASE Category
 Kikuchi, N. ARC/Miura, H. 46-Mech Engr

NAS 5-30112 University of Michigan - Ann Arbor 3776
 Implementation study for the neutral gas and ion mass spectrometer electronic system
Period Obligations
 07/27/87-01/27/89 FY88: \$66,000 TOTAL: \$142,000
Prin. Invest. NASA Tech. Officer CASE Category
 Carignan, G. R. GSFC/Way, S. H. 42-Astro Engr

NCA 2-341 University of Michigan - Ann Arbor 3784
 Distributed ADA for the spaceborne VHSIC multiprocessor system
Period Obligations
 06/01/88-08/31/88 FY88: \$25,628 TOTAL: \$25,628
Prin. Invest. NASA Tech. Officer CASE Category
 Volz, R. A. ARC/Lum, H. 29-Math/Computer, NEC

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NCC 2-517 University of Michigan - Ann Arbor 3785
Fusion of robotics artificial intelligence perception and human systems for advanced space missions

<i>Period</i>	<i>Obligations</i>	
11/01/87-10/31/88	FY88: \$333,478	TOTAL: \$333,478
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Volz, R. A.	ARC/Friedland, P. E.	22-Computer Science
Laird, J.	ARC/Sims, M.	
Conway, L.		

NCC 3-76 University of Michigan - Ann Arbor 3786
Development of tough Ni Al based alloys and composite materials for high temperature applications

<i>Period</i>	<i>Obligations</i>	
01/01/87-12/30/88	FY88: \$25,000	TOTAL: \$97,610
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gibala, R.	LERC/Nathal, M. V.	47-Materials Engr

NCC 8-1 University of Michigan - Ann Arbor 3787
Comet rendezvous asteroid fly by mission

<i>Period</i>	<i>Obligations</i>	
05/05/87-05/05/88	FY88: \$2,500	TOTAL: \$12,469
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gombosi, T. I.	MSFC/Moore, T. E.	41-Aero Engr
	MSFC/Fields, S. H.	

NGR 23-005-015 University of Michigan - Ann Arbor 3788
Theoretical investigation of space charge waves in ionosphere and space plasma sheaths

<i>Period</i>	<i>Obligations</i>	
10/28/63-12/31/88	FY88: \$225,000	TOTAL: \$3,120,037
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagy, A. F.	HQ-ES/Mellott, M. M.	13-Physics
	HQ-ES/Parks, G. K.	

NGR 23-005-320 University of Michigan - Ann Arbor 3789
The expansion of a collision less plasma into a vacuum

<i>Period</i>	<i>Obligations</i>	
01/29/69-11/30/88	FY88: \$74,963	TOTAL: \$1,000,483
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Samir, U.	HQ-ES/Mellott, M. M.	13-Physics
	HQ-ES/Eastman, T. E.	

NGR 23-005-360 University of Michigan - Ann Arbor 3790
A program in aeronomy

<i>Period</i>	<i>Obligations</i>	
12/29/69-01/31/89	FY88: \$237,000	TOTAL: \$3,316,021
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sharp, W. E.	GSFC/Early, L. J.	13-Physics
	GSFC/Pless, R. H.	

NGT 00-050-010 University of Michigan - Ann Arbor 3791
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/86-08/31/88	FY88:	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sharn, W. E.	HQ-LE/Owens, F. C.	31-Atmos Sci

NGT 00-050-047 University of Michigan - Ann Arbor 3792
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/89	FY88: \$36,000	TOTAL: \$53,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cravens, T.	HQ-XE/Owens, F. C.	31-Atmos Sci

NGT 00-050-095 University of Michigan - Ann Arbor 3793
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/86-06/30/89	FY88: \$36,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fogler, H. S.	HQ-LE/Owens, F. C.	43-Chem Engr

NGT 00-050-110 University of Michigan - Ann Arbor 3794
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/88	FY88:	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Irani, K. B.	HQ-LE/Owens, F. C.	99-Multi-Discip

NGT 00-050-190 University of Michigan - Ann Arbor 3795
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/88	FY88:	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Atreya, S. K.	HQ-XE/Owens, F. C.	31-Atmos Sci

NGT 00-050-193 University of Michigan - Ann Arbor 3796
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Killeen, T. L.	HQ-XE/Owens, F. C.	13-Physics

NGT 00-050-201 University of Michigan - Ann Arbor 3797
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Atreya, S. K.	HQ-XE/Owens, F. C.	31-Atmos Sci

NGT 00-050-330 University of Michigan - Ann Arbor 3798
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	HQ-XE/Owens, F. C.	45-Elec Engr

NGT 00-050-368 University of Michigan - Ann Arbor 3799
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gombosi, T. I.	HQ-XE/Owens, F. C.	13-Physics

NGT 00-070-004 University of Michigan - Ann Arbor 3800
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
12/15/86-12/14/88	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaufman, P. B.	HQ-LE/Owens, F. C.	51-Biological Sci

NGT 00-070-040 University of Michigan - Ann Arbor 3801
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
07/01/87-06/30/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Donahue, T. M.	HQ-XE/Owens, F. C.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NGT 00-070-096 University of Michigan - Ann Arbor 3802
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gombosi, T. I.	HQ-XE/Owens, F. C.	31-Atmos Sci

NGT 23-005-801 University of Michigan - Ann Arbor 3803
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/15/84-07/31/88	FY88: \$18,000	TOTAL: \$66,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shin, K. G.	HQ-LB/Owens, F. C.	41-Aero Engr

NGT 23-005-802 University of Michigan - Ann Arbor 3804
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/84-12/31/88	FY88: \$201,215	TOTAL: \$910,857
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weintraub, D. J.	HQ-LB/Owens, F. C.	49-Engr, NEC

NSG 1607 University of Michigan - Ann Arbor 3805
Material property characteristics of cord rubber composites

<i>Period</i>	<i>Obligations</i>	
09/01/79-10/31/88	FY88: \$48,600	TOTAL: \$424,349
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, S. K.	LARC/Perez, S. E. LARC/Howell, W. E.	41-Aero Engr

NSG 7404 University of Michigan - Ann Arbor 3806
A program for research in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
10/01/77-07/31/89	FY88: \$117,237	TOTAL: \$1,046,291
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Atreya, S. K.	HQ-EL/Fox, K. HQ-EL/Quaide, W. L.	31-Atmos Sci

NAG 1-460 Wayne State University 3807
Analysis of the leading edge effects on the boundary layer transition

<i>Period</i>	<i>Obligations</i>	
03/01/84-05/31/89	FY88: \$10,000	TOTAL: \$53,516
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chow, P.	LARC/Maestrello, L.	41-Aero Engr

NAG 2-404 Wayne State University 3808
Mechanisms of vestibular ion transport

<i>Period</i>	<i>Obligations</i>	
07/01/86-12/31/88	FY88: \$36,310	TOTAL: \$100,310
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kerr, T. P.	ARC/Ross, M. D.	51-Biological Sci
Drescher, D. G.	ARC/Oyama, J.	

NAG 3-833 Wayne State University 3809
Radiation resistance studies of amorphous silicon alloy photovoltaic materials

<i>Period</i>	<i>Obligations</i>	
11/05/87-11/04/88	FY88: \$39,960	TOTAL: \$39,960
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woodyard, J. R.	LERC/Brinker, D. J.	45-Elec Engr

NAG 3-918 Wayne State University 3810
Novel concepts of power transmission gears

<i>Period</i>	<i>Obligations</i>	
07/01/88-06/30/89	FY88: \$39,430	TOTAL: \$39,430
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rivin, E. I.	LERC/Chaiko, L. I. LERC/Bill, R. C.	46-Mech Engr

NCC 2-362 Western Michigan University 3811
Application of modern control theory for aircraft control synthesis

<i>Period</i>	<i>Obligations</i>	
08/01/85-09/30/87	FY88:	TOTAL: \$92,547
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alag, G. S.	ARC/Kempel, R. W. ARC/Gilyard, G. B.	41-Aero Engr

NCC 2-493 Western Michigan University 3812
Development of a light weight self contained flight instrumentation and data acquisition system

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/90	FY88: \$35,000	TOTAL: \$122,639
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoadley, A. W.	ARC/Bogue, R. K.	46-Mech Engr

MINNESOTA

NAG 1-808 Univ of Minnesota - Minneapolis-St Paul 3813
Development of an enhanced thermal structural methodology via hybrid computational schemes and adaptive finite element formations

<i>Period</i>	<i>Obligations</i>	
08/01/87-06/15/89	FY88: \$92,631	TOTAL: \$180,707
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tamma, K. K.	LARC/Robinson, J. C. LARC/Adelman, H. M.	46-Mech Engr

NAG 1-821 Univ of Minnesota - Minneapolis-St Paul 3814
Application of nonlinear feedback control theory to supermaneuverable aircraft

<i>Period</i>	<i>Obligations</i>	
09/21/87-09/20/89	FY88: \$44,924	TOTAL: \$85,719
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garrard, W. L.	LARC/Bacon, B. J.	41-Aero Engr
Enns, D. F.	LARC/Ostroff, A. J.	

NAG 3-286 Univ of Minnesota - Minneapolis-St Paul 3815
Boundary layer transition investigation on curved surfaces

<i>Period</i>	<i>Obligations</i>	
06/01/82-12/27/87	FY88:	TOTAL: \$194,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simon, T. W.	LERC/Gaugler, R. E. LERC/Brigham, B. A.	46-Mech Engr

NAG 3-579 Univ of Minnesota - Minneapolis-St Paul 3816
Computation of turbine blade heat transfer

<i>Period</i>	<i>Obligations</i>	
11/01/84-11/15/87	FY88:	TOTAL: \$142,924
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Patankar, S. V.	LERC/Simon, F. F.	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
MINNESOTA (Continued)**

NAG 3-596 Univ of Minnesota - Minneapolis-St Paul 3817
Efficient numerical techniques for complex fluid flows
Period *Obligations*
03/02/85-12/31/87 FY88: TOTAL: \$147,059
Prin. Invest. NASA Tech. Officer CASE Category
Patankar, S. V. LERC/Choo, Y. K. 13-Physics

NAG 3-598 Univ of Minnesota - Minneapolis-St Paul 3818
Investigation of heat transfer and hydrodynamics in oscillating flows with application to Stirling engine components
Period *Obligations*
01/22/85-10/23/88 FY88: \$29,000 TOTAL: \$144,000
Prin. Invest. NASA Tech. Officer CASE Category
Simon, T. W. LERC/Dudenhofer, J. 13-Physics
Seume, J. LERC/Tew, R.

NAG 3-693 Univ of Minnesota - Minneapolis-St Paul 3819
2D and 3D sterling machine simulation using experimentally generated reversing flow correlations
Period *Obligations*
01/20/86-09/30/88 FY88: \$7,292 TOTAL: \$58,218
Prin. Invest. NASA Tech. Officer CASE Category
Goldberg, L. F. LERC/Tew, R. C. 49-Engr, NEC

NAG 3-881 Univ of Minnesota - Minneapolis-St Paul 3820
Boundary layer transition on curved surfaces
Period *Obligations*
03/01/88-12/01/88 FY88: \$14,704 TOTAL: \$14,704
Prin. Invest. NASA Tech. Officer CASE Category
Simon, T. W. LERC/O'brien, J. E. 46-Mech Engr

NAG 5-529 Univ of Minnesota - Minneapolis-St Paul 3821
Dynamics Explorer magnetometer experiment
Period *Obligations*
04/01/85-03/31/89 FY88: \$30,183 TOTAL: \$134,888
Prin. Invest. NASA Tech. Officer CASE Category
Cahill, L. J. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NAG 5-770 Univ of Minnesota - Minneapolis-St Paul 3822
Geodynamical investigation of month rheology over short and intermediate timescales
Period *Obligations*
04/01/86-09/15/89 FY88: \$67,455 TOTAL: \$206,318
Prin. Invest. NASA Tech. Officer CASE Category
Yuen, D. A. GSFC/Welker, J. E. 32-Geological Sci

NAG 5-983 Univ of Minnesota - Minneapolis-St Paul 3823
Coordinated radio electron and waves experiment
Period *Obligations*
09/01/87-09/30/89 FY88: \$25,152 TOTAL: \$45,770
Prin. Invest. NASA Tech. Officer CASE Category
Kellogg, P. J. GSFC/Scudder, J. D. 19-Phys Sci, NEC
GSFC/Ogilvie, K. W.

NAG 5-1009 Univ of Minnesota - Minneapolis-St Paul 3824
Spectral characterization of Northern forests
Period *Obligations*
09/15/87-12/31/88 FY88: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Bauer, M. E. GSFC/Ranson, K. J. 39-Env Sci, NEC

NAG 6-11 Univ of Minnesota - Minneapolis-St Paul 3825
Investigation of auroral electrodynamics and argon release for controlled studies (ARCS)
Period *Obligations*
04/23/81-07/22/89 FY88: \$55,459 TOTAL: \$512,557
Prin. Invest. NASA Tech. Officer CASE Category
Cahill, L. J. GSFC/Early, L. J. 13-Physics
Kintner, P. M. GSFC/Pless, R. H.

NAG 8-500 Univ of Minnesota - Minneapolis-St Paul 3826
Program of analysis of data obtained by the HEAO 3 spacecraft
Period *Obligations*
10/01/84-09/30/88 FY88: \$82,500 TOTAL: \$354,434
Prin. Invest. NASA Tech. Officer CASE Category
Waddington, C. J. MSFC/Harper, B. 11-Astronomy

NAG 9-60 Univ of Minnesota - Minneapolis-St Paul 3827
Rare gas studies on lunar, meteoritic, and selected terrestrial materials
Period *Obligations*
02/01/83-02/01/89 FY88: \$156,915 TOTAL: \$903,998
Prin. Invest. NASA Tech. Officer CASE Category
Pepin, R. O. JSC/Browne, I. D. 32-Geological Sci

NAG 9-110 Univ of Minnesota - Minneapolis-St Paul 3828
Anomalous isotopic abundances in extraterrestrial material
Period *Obligations*
04/23/83-02/01/89 FY88: \$40,000 TOTAL: \$153,000
Prin. Invest. NASA Tech. Officer CASE Category
Nier, A. O. JSC/Browne, I. D. 47-Materials Engr

NAGW 505 Univ of Minnesota - Minneapolis-St Paul 3829
Development of a pyrolysis experiment
Period *Obligations*
10/01/83-07/31/89 FY88: TOTAL: \$165,160
Prin. Invest. NASA Tech. Officer CASE Category
Mauersberger, K. HQ-EL/Evans, L. G. 11-Astronomy
Nier, A. O. HQ-EL/Vescelus, F.

NAGW 800 Univ of Minnesota - Minneapolis-St Paul 3830
Kinetics and mechanisms of stratospheric chlorine release from chlorofluoromethyl species
Period *Obligations*
09/01/85-01/31/89 FY88: TOTAL: \$265,219
Prin. Invest. NASA Tech. Officer CASE Category
Carr, R. W. HQ-EE/Kurylo, M. J. 31-Atmos Sci
HQ-EE/Margitan, J. J.

NAGW 1008 Univ of Minnesota - Minneapolis-St Paul 3831
Convection algorithms for multiple processing super computers and graphical interactive environments on workstations
Period *Obligations*
02/01/87-01/31/89 FY88: TOTAL: \$72,558
Prin. Invest. NASA Tech. Officer CASE Category
Yuen, D. A. HQ-E/Rosendhal, J. D. 32-Geological Sci
HQ-EP/Konkel, R. M.

NAGW 1371 Univ of Minnesota - Minneapolis-St Paul 3832
The origin and evolution of terrestrial planet atmospheres noble gases nitrogen and carbon
Period *Obligations*
03/16/88-03/15/89 FY88: \$29,860 TOTAL: \$29,860
Prin. Invest. NASA Tech. Officer CASE Category
Pepin, R. O. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

**NASA'S UNIVERSITY PROGRAM
MINNESOTA (Continued)**

NAGW 1431 Univ of Minnesota - Minneapolis-St Paul 3833

Satellite inventory of Minnesota forest resources

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$37,738	TOTAL: \$37,738
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bauer, M. E.	HQ-EE/Thompson, D. E.	39-Env Sci, NEC

NAS 2-12090 Univ of Minnesota - Minneapolis-St Paul 3834

Condensation nucleus counter experiment

<i>Period</i>	<i>Obligations</i>	
01/14/85-09/30/87	FY88:	TOTAL: \$145,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, J. C.	ARC/Wilhelmi, A.	31-Atmos Sci

NAS 5-28574 Univ of Minnesota - Minneapolis-St Paul 3835

Design and develop a portion of radio and plasma wave instrument selected to fly on the open wind spacecraft

<i>Period</i>	<i>Obligations</i>	
09/20/84-09/30/88	FY88:	TOTAL: \$339,958
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Kaiser, M. L. GSFC/Stone, R. G.	45-Elec Engr

NAS 5-28740 Univ of Minnesota - Minneapolis-St Paul 3836

An ecological study of peat landforms in Canada and Alaska

<i>Period</i>	<i>Obligations</i>	
06/13/85-09/13/88	FY88:	TOTAL: \$174,170
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glaser, P. H.	GSFC/Oseroff, H.	39-Env Sci, NEC
Janssens, J. A.		

NAS 5-29313 Univ of Minnesota - Minneapolis-St Paul 3837

Support services for ulypres std instrument

<i>Period</i>	<i>Obligations</i>	
08/01/86-11/30/90	FY88: \$126,000	TOTAL: \$365,677
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P.	GSFC/Klein, B.	31-Atmos Sci

NAS 9-17892 Univ of Minnesota - Minneapolis-St Paul 3838

Development of a flow field simulator

<i>Period</i>	<i>Obligations</i>	
09/01/87-07/15/89	FY88:	TOTAL: \$48,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tezduyar, T. E.	JSC/Goodrich, W.	41-Aero Engr

NASW 4215 Univ of Minnesota - Minneapolis-St Paul 3839

Mass spectrometer techniques

<i>Period</i>	<i>Obligations</i>	
11/01/86-09/30/89	FY88:	TOTAL: \$152,360
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nier, A. O.	HQ-EL/Quaide, W. L. HQ-EL/Gold, R. E.	12-Chemistry

NCA 2-329 Univ of Minnesota - Minneapolis-St Paul 3840

Aerodynamics of windshear using computational fluid dynamics

<i>Period</i>	<i>Obligations</i>	
07/16/88-07/15/90	FY88: \$10,272	TOTAL: \$10,272
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lundgren, T. S.	ARC/Moin, P.	41-Aero Engr

NCC 2-497 Univ of Minnesota - Minneapolis-St Paul 3841

Automatic techniques for reconfiguring a multiple processor computing network

<i>Period</i>	<i>Obligations</i>	
09/01/87-09/30/88	FY88: \$99,998	TOTAL: \$99,998
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Slagle, J. R.	ARC/Lum, H.	45-Elec Engr

NCC 2-526 Univ of Minnesota - Minneapolis-St Paul 3842

The quantum dynamics of electronically nonadiabatic chemical reactions

<i>Period</i>	<i>Obligations</i>	
10/01/87-10/31/88	FY88: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Truhlar, D. G.	ARC/Cooper, D. M.	12-Chemistry

NGR 24-005-050 Univ of Minnesota - Minneapolis-St Paul 3843

Measurement of the gamma ray flux of various celestial point sources from high altitude balloons

<i>Period</i>	<i>Obligations</i>	
04/21/65-12/31/88	FY88: \$170,280	TOTAL: \$2,262,951
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waddington, C. J.	HQ-ES/Mellott, M. M. HQ-EZ/Kaluzeński, L. J.	11-Astronomy

NGT 00-050-009 Univ of Minnesota - Minneapolis-St Paul 3844

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/15/86-06/14/89	FY88: \$36,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winckler, J. R.	HQ-LE/Owens, F. C.	13-Physics

NGT 00-050-100 Univ of Minnesota - Minneapolis-St Paul 3845

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/86-09/30/88	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bauer, M. E.	HQ-LE/Owens, F. C.	39-Env Sci, NEC

NGT 00-050-200 Univ of Minnesota - Minneapolis-St Paul 3846

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/15/87-06/14/89	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yuen, D. A.	HQ-XE/Owens, F. C.	32-Geological Sci

NGT 00-050-238 Univ of Minnesota - Minneapolis-St Paul 3847

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/89	FY88: \$33,197	TOTAL: \$33,197
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mauersberger, K.	HQ-XE/Owens, F. C.	13-Physics

NGT 00-050-258 Univ of Minnesota - Minneapolis-St Paul 3848

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gorham, E.	HQ-XE/Owens, F. C.	61-Biol Aspects

NGT 24-001-801 Univ of Minnesota - Minneapolis-St Paul 3849

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/85-04/30/88	FY88:	TOTAL: \$33,524
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pepin, R. O.	HQ-LE/Owens, F. C.	13-Physics

**NASA'S UNIVERSITY PROGRAM
MINNESOTA (Continued)**

NGT 25-001-800 Univ of Minnesota - Minneapolis-St Paul 3850
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/15/85-11/15/87	FY88:	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alexander, E. C., Jr.	HQ-LE/Owens, F. C.	32-Geological Sci

NAG 1-226 Mississippi State University 3857
Transonic viscous-inviscid interaction using Euler and inverse boundary-layer equations

<i>Period</i>	<i>Obligations</i>	
11/01/81-09/30/88	FY88:	TOTAL: \$257,334
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitfield, D. L.	LARC/Streett, C. L.	41-Aero Engr
	LARC/Edwards, J. W.	

NSG 1431 Univ of Minnesota - Minneapolis-St Paul 3851
Neutral constituent measurements in the stratosphere

<i>Period</i>	<i>Obligations</i>	
07/01/77-04/30/89	FY88: \$198,000	TOTAL: \$1,648,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mauersberger, K.	LARC/Beswick, A. G.	31-Atmos Sci
Nier, A. O.		

NAG 3-767 Mississippi State University 3858
3 D unsteady Euler solutions for interacting blade rows

<i>Period</i>	<i>Obligations</i>	
12/15/86-12/13/88	FY88: \$50,000	TOTAL: \$90,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitfield, D. L.	LERC/Hoyniak, D.	41-Aero Engr
	LERC/Huff, D. L.	

NSG 2014 Univ of Minnesota - Minneapolis-St Paul 3852
Exploratory astrophysics and infrared astronomy

<i>Period</i>	<i>Obligations</i>	
02/01/74-12/31/87	FY88:	TOTAL: \$661,509
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ney, E. P.	HQ-EZ/Stencel, R. E.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NAG 3-869 Mississippi State University 3859
Computation of rotor stator interactions using the Navier-Stokes equations

<i>Period</i>	<i>Obligations</i>	
01/20/88-01/19/89	FY88: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitfield, D.	LERC/Sanz, J. M.	41-Aero Engr

NSG 5088 Univ of Minnesota - Minneapolis-St Paul 3853
Magnetospheric physics phenomena using sounding rockets

<i>Period</i>	<i>Obligations</i>	
11/01/75-12/31/88	FY88: \$233,487	TOTAL: \$2,274,698
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winckler, J. R.	GSFC/Early, L. J.	13-Physics
	GSFC/Pless, R. H.	

NAG 8-104 Mississippi State University 3860
Error correcting techniques for OMV digitized data capabilities

<i>Period</i>	<i>Obligations</i>	
05/12/88-05/11/89	FY88: \$35,995	TOTAL: \$35,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingels, F. M.	MSFC/Thomas, H. L.	45-Elec Engr

NSG 5373 Univ of Minnesota - Minneapolis-St Paul 3854
Experiments employing a rocket-borne electron accelerator

<i>Period</i>	<i>Obligations</i>	
06/15/79-04/30/89	FY88: \$151,000	TOTAL: \$765,418
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Early, L. J.	13-Physics
Bernstein, W.	GSFC/Pless, R. H.	

NAG 8-545 Mississippi State University 3861
Standardization of the carbon-carbon and carbon-phenolic materials and processes

<i>Period</i>	<i>Obligations</i>	
08/27/85-01/27/90	FY88: \$148,173	TOTAL: \$397,973
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hall, W. B.	MSFC/Fikes, L. A.	47-Materials Engr
	MSFC/Stucker, M. L.	

MISSISSIPPI

NAG 1-860 Jackson State University 3855
End effector joint conjugates for robotic assembly of large truss structures in space

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$70,744	TOTAL: \$70,744
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brewer, W. V.	LARC/Rhodes, M. D.	46-Mech Engr
Polk, S. L.	LARC/Wise, M. A.	
Rasis, E. P.		

NAG13-6 Mississippi State University 3862
Use of halophytic plants to decrease the rate of decertification of irrigated agricultural lands

<i>Period</i>	<i>Obligations</i>	
03/31/88-09/30/88	FY88: \$11,053	TOTAL: \$11,053
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Esher, R. J.	NSTL/Wolverton, B. C.	39-Env Sci, NEC

NAG13-8 Mississippi State University 3863
Use of salt tolerant plants for removal of minerals and toxic chemicals from water supplies

<i>Period</i>	<i>Obligations</i>	
07/26/88-07/25/89	FY88: \$35,047	TOTAL: \$35,047
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Esher, R. J.	NSTL/Wolverton, B. C.	39-Env Sci, NEC

NCC13-1 Jackson State University 3856
Research relative to the spatial data management and analysis systems

<i>Period</i>	<i>Obligations</i>	
02/03/87-11/14/88	FY88: \$243,779	TOTAL: \$394,855
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leflore, R. M.	NSTL/Galle, R. A.	22-Computer Science

NAS 8-36044 Mississippi State University 3864
Analysis of space telescope data collection system

<i>Period</i>	<i>Obligations</i>	
08/03/84-12/31/89	FY88:	TOTAL: \$97,631
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingels, F. M.	MSFC/Parker, G. A.	45-Elec Engr
	MSFC/Schrimsher, H. E.	

**NASA'S UNIVERSITY PROGRAM
MISSISSIPPI (Continued)**

NAS 8-36486 Mississippi State University 3865
Advanced 3-D viscous SSME turbine rotor stator CFD algorithms
Period Obligations
09/06/85-09/06/86 FY88: TOTAL: \$32,152
Prin. Invest. NASA Tech. Officer CASE Category
Whitfield, D. L. MSFC/Wilson, H. B. 31-Atmos Sci
MSFC/Jordan, J. D.

NAS 8-36717 Mississippi State University 3866
Spacelab system analysis
Period Obligations
07/30/86-06/01/89 FY88: \$71,813 TOTAL: \$158,728
Prin. Invest. NASA Tech. Officer CASE Category
Ingels, F. M. MSFC/Emens, F. 29-Math/Cmputer, NEC
MSFC/Jobe, G. S.

NAS 9-17319 Mississippi State University 3867
Develop a microcomputer application to bioprocessing
Period Obligations
02/01/85-10/01/88 FY88: \$8,900 TOTAL: \$75,751
Prin. Invest. NASA Tech. Officer CASE Category
Rundell, R. JSC/Morrison, D. 59-Life Sci, NEC

NAS13-321 Mississippi State University 3868
Methods for disposal of waste propellants residuals and incomplete combustion products from ignition of the advanced solid rocket motor
Period Obligations
10/01/87-04/01/88 FY88: TOTAL: \$39,281
Prin. Invest. NASA Tech. Officer CASE Category
Crochet, R. A. NSTL/McCaleb, R. C. 32-Geological Sci
Esher, R. J. Hill, D. O.

NCA 2-52 Mississippi State University 3869
A study of probe induced separation on blunt bodies in transonic flow
Period Obligations
07/01/85-06/30/87 FY88: TOTAL: \$24,925
Prin. Invest. NASA Tech. Officer CASE Category
Koenig, K. ARC/Chapman, G. T. 41-Aero Engr

NCA 2-244 Mississippi State University 3870
A study of a three dimensional cavity in transonic flow
Period Obligations
08/16/87-08/15/89 FY88: \$15,000 TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Koening, K. ARC/Chapman, G. T. 41-Aero Engr

NSG 1577 Mississippi State University 3871
Transformation of two and three dimensional regions by elliptic systems
Period Obligations
11/15/78-03/31/89 FY88: \$32,306 TOTAL: \$289,417
Prin. Invest. NASA Tech. Officer CASE Category
Thompson, J. F. LARC/Smith, R. E., Jr. 21-Mathematics
Mastin, C. W. LARC/Shoosmith, J. N.

NAG 8-648 University of Mississippi - University 3872
Electric field measurements inside COHMEY thunderstorms
Period Obligations
09/01/87-09/01/90 FY88: TOTAL: \$22,694
Prin. Invest. NASA Tech. Officer CASE Category
Marshall, T. C. MSFC/Blakeslee, R. 19-Phys Sci, NEC

NGT 00-050-365 University of Mississippi - University 3873
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Hackett, R. M. HQ-XE/Owens, F. C. 49-Engr, NEC

NAG 1-800 University of Southern Mississippi 3874
Viewing resolution as a problem in detection the application of receiver operating characteristics to determine efficacy of resolution enhancement
Period Obligations
08/01/87-07/31/89 FY88: \$10,259 TOTAL: \$18,201
Prin. Invest. NASA Tech. Officer CASE Category
Rayborn, G. H. LARC/Wood, G. M. 19-Phys Sci, NEC
LARC/Lewis, B. W.

NASW 4320 University of Southern Mississippi 3875
Enhancements being made to the existing sort aid software package
Period Obligations
04/22/88-04/21/89 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Huffman, D. HQ-IU/Bivins, R. G. 22-Computer Science

NAS13-326 University of Southern Mississippi 3876
Operation of an automated manufacturing applications center
Period Obligations
10/14/87-10/13/88 FY88: \$199,944 TOTAL: \$199,944
Prin. Invest. NASA Tech. Officer CASE Category
Huffman, G. D. NSTL/Barlow, R. M. 22-Computer Science

MISSOURI

NAG 2-454 Saint Louis University 3877
Skeletal collagen turnover by the osteoblast
Period Obligations
03/01/87-05/31/89 FY88: \$45,000 TOTAL: \$90,100
Prin. Invest. NASA Tech. Officer CASE Category
Partridge, N. C. ARC/Holton, E. M. 51-Biological Sci

NAS 8-35330 Saint Louis University 3878
Statistical analysis and use of vas radiance data
Period Obligations
09/06/83-09/05/86 FY88: TOTAL: \$104,192
Prin. Invest. NASA Tech. Officer CASE Category
Fuelberg, H. E. MSFC/Wilson, G. S. 31-Atmos Sci
MSFC/Arnold, J. E.

NAG 1-875 University of Missouri - Columbia 3879
Engineering specifications and system design for computer aided design computer aided manufacture of custom shoes
Period Obligations
05/15/88-12/31/88 FY88: \$26,999 TOTAL: \$26,999
Prin. Invest. NASA Tech. Officer CASE Category
Bao, H. P. LARC/Farmer, F. H. 49-Engr, NEC
LARC/Samos, J.

**NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)**

NCC 2-199 University of Missouri - Columbia 3880
Aerodynamic holography in transonic flow
Period *Obligations*
07/01/82-06/30/89 FY88: TOTAL: \$67,350
Prin. Invest. NASA Tech. Officer CASE Category
Miles, J. B. ARC/Brown, J. L. 41-Aero Engr

NGT 00-050-061 University of Missouri - Columbia 3881
NASA graduate student researchers program
Period *Obligations*
07/01/86-06/30/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
Marrero, T. R. HQ-XE/Owens, F. C. 43-Chem Engr

NAG 1-380 University of Missouri - Rolla 3882
Transport properties of air at high temperatures
Period *Obligations*
07/01/83-12/31/88 FY88: TOTAL: \$88,975
Prin. Invest. NASA Tech. Officer CASE Category
Biolsi, L., Jr. LARC/Sutton, K. 12-Chemistry
LARC/Jones, J. J.

NAG 1-814 University of Missouri - Rolla 3883
The application of computational methods to long range atmospheric acoustic propagation
Period *Obligations*
01/01/88-12/31/89 FY88: TOTAL: \$140,966
Prin. Invest. NASA Tech. Officer CASE Category
Eversman, W. LARC/Preisser, J. S. 13-Physics
LARC/Watson, W. R.

NAG 1-861 University of Missouri - Rolla 3884
Characterization of extinction and reignition of hydrogen-air diffusion flame
Period *Obligations*
03/01/88-02/28/89 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Isaac, K. M. LARC/Pellet, G. L. 43-Chem Engr
LARC/Northam, G. B.

NAG 3-178 University of Missouri - Rolla 3885
Study of sound transmission in high speed flows
Period *Obligations*
08/31/81-10/25/88 FY88: TOTAL: \$250,570
Prin. Invest. NASA Tech. Officer CASE Category
Eversman, W. LERC/Dittmar, J. H. 41-Aero Engr
Wicks, T. LERC/Baumeister, K. J.

NAS 8-34758 University of Missouri - Rolla 3886
Containerless processing of glass forming melts in space
Period *Obligations*
03/02/82-12/31/89 FY88: \$95,000 TOTAL: \$663,614
Prin. Invest. NASA Tech. Officer CASE Category
Day, D. E. MSFC/Fogle, V. 13-Physics
MSFC/Williams, J. R.

NAGW 742 University of Missouri - Saint Louis 3887
Distribution and evolution of Martian volatiles
Period *Obligations*
06/01/87-05/31/88 FY88: TOTAL: \$37,497
Prin. Invest. NASA Tech. Officer CASE Category
James, P. B. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1116 University of Missouri - Saint Louis 3888
Distribution and evolution of Martian volatiles
Period *Obligations*
06/01/87-05/31/89 FY88: \$29,747 TOTAL: \$58,511
Prin. Invest. NASA Tech. Officer CASE Category
James, P. B. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAG 1-639 Washington University 3889
Solution of geometrically nonlinear statics problems by the p-version of the finite element method
Period *Obligations*
03/01/86-11/30/88 FY88: \$47,776 TOTAL: \$182,307
Prin. Invest. NASA Tech. Officer CASE Category
Szabo, B. A. LARC/Knight, N. F. 41-Aero Engr
LARC/Stroud, W. J.

NAG 3-578 Washington University 3890
Investigation of cryogenic propellant management in a low-gravity environment
Period *Obligations*
11/01/84-02/13/89 FY88: \$75,000 TOTAL: \$274,500
Prin. Invest. NASA Tech. Officer CASE Category
Hochstein, J. I. LERC/Chato, D. J. 46-Mech Engr
LERC/Aydellott, J. C.

NAG 3-817 Washington University 3891
Dynamic modeling of solar dynamic power components and systems
Period *Obligations*
08/26/87-08/24/89 FY88: \$148,930 TOTAL: \$188,204
Prin. Invest. NASA Tech. Officer CASE Category
Hochstein, J. I. LERC/Miller, D. R. 46-Mech Engr
Korakianitis, T. P. LERC/Wulf, R. F.

NAG 3-905 Washington University 3892
Modeling of cryogenic propellant behavior in propellant management systems
Period *Obligations*
05/15/88-09/15/88 FY88: \$20,700 TOTAL: \$20,700
Prin. Invest. NASA Tech. Officer CASE Category
Hochstein, J. I. LERC/Hardy, T. L. 46-Mech Engr
LERC/Dewitt, R.

NAG 5-846 Washington University 3893
Scintillating optical fiber trajectory detector studies for astromog
Period *Obligations*
09/15/86-03/31/89 FY88: \$79,884 TOTAL: \$110,465
Prin. Invest. NASA Tech. Officer CASE Category
Binns, W. R. GSFC/Ormes, J. F. 11-Astronomy
Israel, M. H.
Klarmann, J.

NAG 8-498 Washington University 3894
Analysis of data from the HEAO heavy nuclei experiment (C3)
Period *Obligations*
10/01/84-09/30/88 FY88: \$122,500 TOTAL: \$548,500
Prin. Invest. NASA Tech. Officer CASE Category
Israel, M. H. MSFC/Harper, B. A. 11-Astronomy

NAG 9-7 Washington University 3895
Lunar and planetary surface dynamics and early history
Period *Obligations*
02/01/80-02/01/89 FY88: \$165,000 TOTAL: \$1,211,400
Prin. Invest. NASA Tech. Officer CASE Category
Hohenberg, C. M. JSC/Browne, I. D. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)**

NAG 9-55 Washington University 3896
Solid state and mass spectrometric measurements of extraterrestrial
Period Obligations
02/01/83-08/01/88 FY88: \$234,431 TOTAL: \$2,509,531
Prin. Invest. NASA Tech. Officer CASE Category
Walker, R. M. JSC/Browne, I. D. 32-Geological Sci
ARC/Corsiglia, V. R.

NAG 9-56 Washington University 3897
Analytical, experimental, and modeling studies of lunar and terrestrial igneous rocks
Period Obligations
02/01/83-02/01/89 FY88: \$215,000 TOTAL: \$1,198,327
Prin. Invest. NASA Tech. Officer CASE Category
Haskin, L. A. JSC/Browne, I. D. 32-Geological Sci
Korotev, R. L.
Lindstrom, D. J.

NAG 9-98 Washington University 3898
Geochemistry and petrology of isotopically dated Archaean ultramafic and mafic rocks from west Greenland
Period Obligations
03/01/85-09/01/88 FY88: TOTAL: \$63,700
Prin. Invest. NASA Tech. Officer CASE Category
Dymek, R. F. JSC/Phinney, W. C. 32-Geological Sci

NAG 9-223 Washington University 3899
U PB geochronology and ND isotopic studies of the Slave province nwt Canada
Period Obligations
05/01/87-05/01/89 FY88: \$19,500 TOTAL: \$39,500
Prin. Invest. NASA Tech. Officer CASE Category
Bowring, S. A. JSC/Phinney, W. C. 32-Geological Sci

NAG 9-292 Washington University 3900
RB SR and SM ND geochronology and isotopic systematics of diamonds
Period Obligations
04/01/88-04/01/89 FY88: \$10,000 TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Podosek, F. JSC/Phinney, W. C. 32-Geological Sci

NAGW 122 Washington University 3901
Proposal for the innovative research program
Period Obligations
11/15/80-11/14/88 FY88: \$140,000 TOTAL: \$1,110,000
Prin. Invest. NASA Tech. Officer CASE Category
Walker, R. M. HQ-E/Rosenthal, J. D. 99-Multi-Discip
Israel, M. H. HQ-EP/Konkel, R. M.

NAGW 432 Washington University 3902
Structure and evolution of outer planet satellite
Period Obligations
03/01/83-12/31/89 FY88: \$37,730 TOTAL: \$195,386
Prin. Invest. NASA Tech. Officer CASE Category
McKinnon, W. B. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 592 Washington University 3903
Annihilation radiation in cosmic gamma ray bursts
Period Obligations
04/01/84-09/30/88 FY88: \$25,000 TOTAL: \$88,710
Prin. Invest. NASA Tech. Officer CASE Category
Katz, J. HQ-EZ/Kaluzienski, L. J. 39-Env Sci, NEC
HQ-EZ/Bunner, A. N.

NAGW 608 Washington University 3904
Fundamental investigations related to the development of capture cell instruments for comet-atom return missions and shuttle based studies of interplanetary dust
Period Obligations
04/01/84-09/30/87 FY88: TOTAL: \$254,569
Prin. Invest. NASA Tech. Officer CASE Category
Walker, R. M. HQ-EL/Quaide, W. L. 32-Geological Sci

NAGW 660 Washington University 3905
Continuing analysis of cloud form and related Viking and Mariner 9 data
Period Obligations
09/01/84-09/30/88 FY88: TOTAL: \$124,805
Prin. Invest. NASA Tech. Officer CASE Category
Kahn, R. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 883 Washington University 3906
High resolution spectral imagery of Halley's comet and of p-gracobini-zinnes
Period Obligations
04/01/86-08/30/88 FY88: TOTAL: \$102,069
Prin. Invest. NASA Tech. Officer CASE Category
Smith, W. H. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAGW 1215 Washington University 3907
Physical studies of Uranian satellite geologic materials
Period Obligations
09/15/87-12/31/88 FY88: TOTAL: \$14,264
Prin. Invest. NASA Tech. Officer CASE Category
McKinnon, W. B. HQ-EL/Quaide, W. L. 19-Phys Sci, NEC
HQ-EL/Underwood, J.

NAG10-22 Washington University 3908
Study entitled role of auxin in normal and aberrant gravitropism of tomato seedlings
Period Obligations
06/18/85-06/18/88 FY88: TOTAL: \$95,000
Prin. Invest. NASA Tech. Officer CASE Category
Packard, B. KSC/Knott, W. M. 39-Env Sci, NEC

NASW 4017 Washington University 3909
Mapping surface materials via remote sensing data in Missouri and Egypt
Period Obligations
03/18/85-09/17/88 FY88: TOTAL: \$418,114
Prin. Invest. NASA Tech. Officer CASE Category
Arvidson, R. E. HQ-EE/Evans, D. 19-Phys Sci, NEC
Guinness, E.
Sultan, M.

NCA 2-222 Washington University 3910
Canal otolith interaction in the vestibulo ocular reflex
Period Obligations
06/01/87-05/31/89 FY88: \$38,626 TOTAL: \$76,140
Prin. Invest. NASA Tech. Officer CASE Category
Paige, G. ARC/Tomko, D. 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)**

NGR 26-008-001 Washington University 3911
 Determination of characteristics of high altitude primary cosmic radiation at low latitudes
Period *Obligations*
 09/01/61-10/31/88 FY88: \$305,000 TOTAL: \$3,630,517
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Israel, M. H. HQ-ES/Mellott, M. M. 11-Astronomy
 Klarmann, J. HQ-EZ/Kaluzienski, L. J.
 Binns, W. R.

NGT 00-050-007 Washington University 3912
 NASA graduate student researchers program
Period *Obligations*
 05/01/86-04/30/89 FY88: \$18,000 TOTAL: \$72,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simmons, D. J. HQ-LE/Owens, F. C. 71-Anthropology

NGT 00-050-024 Washington University 3913
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-05/31/88 FY88: TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Walker, R. M. HQ-EE/Richman, J. G. 13-Physics

NGT 00-050-138 Washington University 3914
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Szabo, B. A. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-162 Washington University 3915
 NASA graduate student researchers program
Period *Obligations*
 10/01/87-09/30/89 FY88: \$16,500 TOTAL: \$16,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arvidson, R. E. HQ-XE/Owens, F. C. 99-Multi-Discip

NGT 00-050-181 Washington University 3916
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Podeseck, F. HQ-XE/Owens, F. C. 32-Geological Sci

NGT 00-050-182 Washington University 3917
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Israel, M. H. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-194 Washington University 3918
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hohenberg, C. M. HQ-XE/Owens, F. C. 13-Physics

NGT 00-050-289 Washington University 3919
 NASA graduate student researchers program
Period *Obligations*
 10/01/88-09/30/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arvidson, R. E. HQ-XE/Owens, F. C. 32-Geological Sci

NGT 00-050-295 Washington University 3920
 NASA graduate student researchers program
Period *Obligations*
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Crozaz, G. HQ-XE/Owens, F. C. 12-Chemistry

NGT 26-010-800 Washington University 3921
 NASA graduate student researchers program
Period *Obligations*
 09/15/84-09/14/87 FY88: TOTAL: \$45,825
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, J. G. HQ-LB/Owens, F. C. 13-Physics

NGT 26-010-801 Washington University 3922
 NASA graduate student researchers program
Period *Obligations*
 06/06/85-08/31/87 FY88: TOTAL: \$35,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hahn, H. T. HQ-LE/Owens, F. C. 46-Mech Engr

NSG 1601 Washington University 3923
 Quantitative non-destructive evaluation of composite materials based on ultrasonic wave propagation
Period *Obligations*
 03/15/79-03/14/89 FY88: \$106,001 TOTAL: \$887,201
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, J. G. LARC/Madaras, E. T. 13-Physics
 LARC/Heyman, J. S.

NSG 7087 Washington University 3924
 Computerized analysis of Martian crater and Aeolian feature data
Period *Obligations*
 08/01/74-12/31/88 FY88: \$163,413 TOTAL: \$1,343,373
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arvidson, R. E. HQ-EL/Scott, D. H. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NSG 7334 Washington University 3925
 Continued research interferometric method
Period *Obligations*
 04/01/77-08/30/88 FY88: TOTAL: \$875,539
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, W. H. HQ-EL/Brinton, H. C. 11-Astronomy
 HQ-EL/Rahe, J. H.

NSG 7545 Washington University 3926
 Multispectral, topographic, and photogeologic studies of Aeolian phenomena on Mars
Period *Obligations*
 03/01/79-12/31/88 FY88: TOTAL: \$368,456
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arvidson, R. E. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Scott, D. H.

MONTANA

NAG 8-736 Montana State University 3927
 Temporal and spectral studies of some active galactic nuclei
Period *Obligations*
 08/01/88-07/31/89 FY88: \$23,955 TOTAL: \$23,955
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tsuruta, S. MSFC/Harper, B. A. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
MONTANA (Continued)**

NAG 9-241	Montana State University	3928	Aqueous iodine bioridal efficacy <i>Period</i> 06/01/87-06/01/89 <i>Prin. Invest.</i> McFeters, G. A. Pyle, B. H.	<i>Obligations</i> FY88: \$100,001 NASA Tech. Officer JSC/Sauer, R. L.	TOTAL: \$125,001 <i>Case Category</i> 12-Chemistry
NAG 9-316	Montana State University	3929	Electrochemical methods applicable to water quality under microgravity conditions <i>Period</i> 09/15/88-09/14/89 <i>Prin. Invest.</i> Geer, R. D.	<i>Obligations</i> FY88: \$14,782 NASA Tech. Officer JSC/Goldstein, S. H.	TOTAL: \$14,782 <i>Case Category</i> 19-Phys Sci, NEC
NAS 9-17346	Montana State University	3930	Adaptation to iodine resistance in waterborne bacteria <i>Period</i> 04/01/85-05/31/87 <i>Prin. Invest.</i> McFeters, G. A.	<i>Obligations</i> FY88: NASA Tech. Officer JSC/Sauer, R. L.	TOTAL: \$99,950 <i>Case Category</i> 51-Biological Sci
NGT 00-050-217	Montana State University	3931	NASA graduate student researchers program <i>Period</i> 07/01/87-06/30/89 <i>Prin. Invest.</i> McFeters, G. A.	<i>Obligations</i> FY88: \$36,000 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$36,000 <i>Case Category</i> 51-Biological Sci
NAGW 829	University of Montana	3932	Analysis of vegetation water stress using high spectral resolution imagery and computer simulation <i>Period</i> 11/01/85-10/31/87 <i>Prin. Invest.</i> Running, S. W. Rock, B. N.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EE/Murphy, R. E. HQ-EE/Wickland, D. E.	TOTAL: \$86,313 <i>Case Category</i> 39-Env Sci, NEC
NAGW 952	University of Montana	3933	Extrapolation of process models of evapotranspiration and net primary production of coniferous forests to large spatial scales <i>Period</i> 10/01/86-09/30/88 <i>Prin. Invest.</i> Running, S. W. Potts, D. F. Band, L. E.	<i>Obligations</i> FY88: \$131,979 NASA Tech. Officer HQ-EE/Wickland, D. E. HQ-EE/Ruzek, M. J.	TOTAL: \$216,979 <i>Case Category</i> 39-Env Sci, NEC
NCA 2-26	University of Montana	3934	Leaf area index and primary production of coniferous forests estimated with LANDSAT TM and computer simulation <i>Period</i> 04/01/85-03/31/87 <i>Prin. Invest.</i> Running, S.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Peterson, D. L.	TOTAL: \$60,316 <i>Case Category</i> 39-Env Sci, NEC
NCA 2-138	University of Montana	3935	Relationship between leaf area index of western coniferous forests and the AVHRR vegetation index <i>Period</i> 07/01/86-06/30/88 <i>Prin. Invest.</i> Running, S. W.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Peterson, D. L.	TOTAL: \$24,254 <i>Case Category</i> 54-Env Biology
NCA 2-252	University of Montana	3936	Dynamic simulation of the water and nitrogen interactions controlling canopy processes using remotely sensed inputs <i>Period</i> 09/01/87-03/31/89 <i>Prin. Invest.</i> Running, S. W.	<i>Obligations</i> FY88: NASA Tech. Officer ARC/Peterson, D. L.	TOTAL: \$39,462 <i>Case Category</i> 54-Env Biology
NGT 27-003-800	University of Montana	3937	NASA graduate student researchers program <i>Period</i> 06/01/85-08/31/88 <i>Prin. Invest.</i> Running, S. W.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-LE/Owens, F. C.	TOTAL: \$51,840 <i>Case Category</i> 54-Env Biology
NEBRASKA					
NAG 3-95	University of Nebraska - Lincoln	3938	Intercalated carbon fiber conductor for aerospace use <i>Period</i> 09/01/80-01/25/89 <i>Prin. Invest.</i> Woollam, J. A.	<i>Obligations</i> FY88: \$44,492 NASA Tech. Officer LERC/Jaworske, D. A.	TOTAL: \$318,482 <i>Case Category</i> 45-Elec Engr
NAG 3-154	University of Nebraska - Lincoln	3939	Surface passivation of III IV compound semiconductors for microwave applications <i>Period</i> 03/10/81-01/02/89 <i>Prin. Invest.</i> Woollam, J. A.	<i>Obligations</i> FY88: \$50,000 NASA Tech. Officer LERC/Pouch, J. J.	TOTAL: \$567,652 <i>Case Category</i> 13-Physics
NAG 3-806	University of Nebraska - Lincoln	3940	Error protection for digital image transmission over noisy channels <i>Period</i> 07/01/87-08/15/89 <i>Prin. Invest.</i> Sayood, K.	<i>Obligations</i> FY88: \$56,006 NASA Tech. Officer LERC/Whyte, W. A. LERC/Sohn, P. Y.	TOTAL: \$86,054 <i>Case Category</i> 45-Elec Engr
NAG 3-866	University of Nebraska - Lincoln	3941	Laser deposition of thin film superconductors for microelectronics preparation and evaluation <i>Period</i> 01/15/88-01/14/89 <i>Prin. Invest.</i> Woollam, J. A. Ianno, N. J.	<i>Obligations</i> FY88: \$50,000 NASA Tech. Officer LERC/Warner, J. D.	TOTAL: \$50,000 <i>Case Category</i> 13-Physics
NAG 5-277	University of Nebraska - Lincoln	3942	Bidirectional reflectance modeling of non homogenous plant canopies <i>Period</i> 09/15/82-02/28/87 <i>Prin. Invest.</i> Norman, J. M.	<i>Obligations</i> FY88: NASA Tech. Officer GSFC/Kimes, D. S.	TOTAL: \$139,044 <i>Case Category</i> 55-Agriculture Sci

**NASA'S UNIVERSITY PROGRAM
NEBRASKA (Continued)**

NAG 5-561 University of Nebraska - Lincoln 3943
Comparison of latent and sensible heat fluxes
Period *Obligations*
06/01/85-06/30/87 FY88: TOTAL: \$130,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blad, B. GSFC/Hall, F. 31-Atmos Sci
Hubbard, K. G. GSFC/Gurney, R. J.
Norman, J. M.

NAG 5-825 University of Nebraska - Lincoln 3944
Far ultraviolet study of superegiant semidelocked and contact systems
Period *Obligations*
08/01/86-07/31/88 FY88: TOTAL: \$24,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leung, K. C. GSFC/Kondo, Y. 11-Astronomy

NAG 5-839 University of Nebraska - Lincoln 3945
The evolution and chromospheric phenomens in dwarf Cepheids
Period *Obligations*
09/01/86-06/30/88 FY88: TOTAL: \$13,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schmidt, E. G. GSFC/Kondo, Y. 11-Astronomy

NAG 5-876 University of Nebraska - Lincoln 3946
Long term measurement network for the first ISLSCP field experiment
Period *Obligations*
02/15/87-03/14/88 FY88: TOTAL: \$103,438
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blad, B. GSFC/Hall, F. 39-Env Sci, NEC

NAG 5-890 University of Nebraska - Lincoln 3947
Measurement and analysis of latent and sensible heat flux
Period *Obligations*
04/15/87-01/14/89 FY88: \$73,000 TOTAL: \$177,004
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Verma, S. B. GSFC/Camillo, P. 39-Env Sci, NEC
GSFC/Hall, F.

NAG 5-894 University of Nebraska - Lincoln 3948
Measuring and modeling near surface reflected and emitted radiation fluxes
Period *Obligations*
04/15/87-10/31/88 FY88: \$88,099 TOTAL: \$215,099
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blad, B. L. GSFC/Camillo, P. 39-Env Sci, NEC
GSFC/Hall, F.

NAG 5-916 University of Nebraska - Lincoln 3949
Design of source coders and joint source channel coders for noisy channels
Period *Obligations*
06/01/87-06/14/89 FY88: \$49,260 TOTAL: \$88,980
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sayood, K. GSFC/Miller, W. H. 49-Engr, NEC
GSFC/Morakis, J. C.

NAG 5-957 University of Nebraska - Lincoln 3950
Modeling vegetation atmosphere interactions for Fife
Period *Obligations*
07/15/87-07/14/88 FY88: TOTAL: \$5,736
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Norman, J. GSFC/Camillo, P. 39-Env Sci, NEC
GSFC/Gurney, R. J.

NAGW 983 University of Nebraska - Lincoln 3951
FOS simultaneity in optical and thermal on Konza prairie
Period *Obligations*
12/01/86-11/30/87 FY88: TOTAL: \$19,973
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Norman, J. M. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC

NAGW 1099 University of Nebraska - Lincoln 3952
Directional radiance modeling of vegetation in thermal and solar wavebands
Period *Obligations*
06/01/87-11/30/88 FY88: TOTAL: \$74,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Norman, J. M. HQ-EE/Ruzek, M. J. 39-Env Sci, NEC
Walter, E. A. HQ-EE/Murphy, R. E.

NAGW 1266 University of Nebraska - Lincoln 3953
Synoptic analysis of ice melt from Nimbus-7 SMMR
Period *Obligations*
09/01/87-08/31/88 FY88: \$43,427 TOTAL: \$43,427
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, M. R. HQ-EE/Thomas, R. H. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1275 University of Nebraska - Lincoln 3954
Surface recordings of vestibular responses to pulsed acceleration
Period *Obligations*
12/01/87-11/30/88 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jones, T. A. HQ-EB/Halstead, T. W. 51-Biological Sci

NCA 2-147 University of Nebraska - Lincoln 3955
Composite materials characterization for analysis of oblique wing aircraft
Period *Obligations*
07/01/86-12/31/87 FY88: TOTAL: \$32,628
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, C. W. ARC/Gupta, K. K. 41-Aero Engr

NCA 2-234 University of Nebraska - Lincoln 3956
Mathematical analysis and modelling of eye movements induced by angular and linear accelerations
Period *Obligations*
06/15/87-09/14/87 FY88: TOTAL: \$11,273
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doslak, M. J. ARC/Tomko, D. 45-Elec Engr

NCA 2-318 University of Nebraska - Lincoln 3957
Development of composite finite dynamic elements for analysis of aircraft structures
Period *Obligations*
06/01/88-08/31/89 FY88: \$33,960 TOTAL: \$33,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, C. W. ARC/Gupta, K. K. 41-Aero Engr

NGR 28-004-021 University of Nebraska - Lincoln 3958
Interaction of radiation with planetary gases
Period *Obligations*
02/23/73-05/31/89 FY88: \$28,222 TOTAL: \$610,139
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Samson, J. A. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

**NASA'S UNIVERSITY PROGRAM
NEBRASKA (Continued)**

NGT 00-050-214 University of Nebraska - Lincoln 3959
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Gorman, M. R. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-070-017 University of Nebraska - Lincoln 3960
 Graduate student researchers underrepresented minority focus program
Period Obligations
 03/01/87-02/29/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Alexander, D. R. HQ-LE/Owens, F. C. 46-Mech Engr

NAG 2-430 University of Nebraska - Medical Center 3961
 Developing vestibular function using surface recordings of peripheral and brainstem vestibular neural activity
Period Obligations
 12/01/86-11/30/87 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
 Jones, T. A. ARC/Ross, M. D. 51-Biological Sci

NEVADA

NAS 8-34685 Univ. of Nevada - Desert Res. Inst. 3962
 An inertial velocity reference for the NASA airborne Doppler lidar
Period Obligations
 06/25/82-02/28/88 FY88: TOTAL: \$357,482
Prin. Invest. NASA Tech. Officer CASE Category
 Telford, J. W. MSFC/Johnson, S. C. 31-Atmos Sci
 MSFC/Bilbro, J. W.

NAGW 913 University of Nevada - Reno 3963
 Geobotanical remote sensing of alluvial geomorphology and environmental stress in the Owens Valley California
Period Obligations
 07/01/86-12/31/88 FY88: TOTAL: \$103,874
Prin. Invest. NASA Tech. Officer CASE Category
 Mouat, D. A. HQ-EE/Baltuck, M. 32-Geological Sci
 HQ-EE/Murphy, R. E.

NAGW 923 University of Nevada - Reno 3964
 Utilization and development of orbital platform hosted remote sensing technology
Period Obligations
 08/01/86-04/30/89 FY88: TOTAL: \$249,036
Prin. Invest. NASA Tech. Officer CASE Category
 Taranik, J. V. HQ-EE/Tuyahov, A. J. 32-Geological Sci

NAS 5-28765 University of Nevada - Reno 3965
 The nature and origin of mineral coatings on volcanic rocks of the Black Mountain, Stonewall Mountain and Kane Springs Wash volcanic centers in southern Nevada
Period Obligations
 07/30/85-11/29/88 FY88: TOTAL: \$308,276
Prin. Invest. NASA Tech. Officer CASE Category
 Taranik, J. V. GSFC/Oseroff, H. 32-Geological Sci

NASW 4050 University of Nevada - Reno 3966
 Geological and geobotanical analysis of the southern Hot Creek Range, Nevada, using airborne imaging spectrometer
Period Obligations
 07/01/85-06/30/87 FY88: TOTAL: \$89,529
Prin. Invest. NASA Tech. Officer CASE Category
 Taranik, J. V. HQ-EE/Murphy, R. 32-Geological Sci
 HQ-EE/Baltuck, M.

NCA 2-182 University of Nevada - Reno 3967
 Exobiology site selection for future Mars missions Martian paleolake sediments and terrestrial analogs
Period Obligations
 11/15/86-11/14/88 FY88: \$40,000 TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
 Wharton, R. A. ARC/McKay, C. P. 31-Atmos Sci

NCC 2-507 University of Nevada - Reno 3968
 Numerical investigations in three dimensional internal flows
Period Obligations
 10/01/87-05/31/88 FY88: \$39,662 TOTAL: \$39,662
Prin. Invest. NASA Tech. Officer CASE Category
 Rose, W. C. ARC/Bencze, D. P. 41-Aero Engr

NGT 00-050-157 University of Nevada - Reno 3969
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Taranik, J. V. HQ-XE/Owens, F. C. 32-Geological Sci

NEW HAMPSHIRE

NAG 2-480 Dartmouth College 3970
 A network system administration system
Period Obligations
 09/01/87-08/31/89 FY88: \$35,807 TOTAL: \$35,807
Prin. Invest. NASA Tech. Officer CASE Category
 Bishop, M. A. ARC/Fernquist, A. R. 22-Computer Science
 ARC/Wall, W. D.

NAG 3-775 Dartmouth College 3971
 Improving the low temperaturg ductility of the by intermetallic nual
Period Obligations
 04/01/87-06/30/89 FY88: \$49,615 TOTAL: \$99,447
Prin. Invest. NASA Tech. Officer CASE Category
 Baker, I. LERC/Nathal, M. V. 47-Materials Engr

NAG 5-287 Dartmouth College 3972
 Observations of the ultraviolet spectra of helium white dwarfs
Period Obligations
 01/01/83-12/31/87 FY88: TOTAL: \$106,196
Prin. Invest. NASA Tech. Officer CASE Category
 Wegner, G. A. GSFC/Kondo, Y. 11-Astronomy

NAG 5-718 Dartmouth College 3973
 An investigation of electrostatic wave generation and ion heating
Period Obligations
 10/15/85-10/14/87 FY88: TOTAL: \$60,075
Prin. Invest. NASA Tech. Officer CASE Category
 Hudson, M. GSFC/Bullock, G. D. 19-Phys Sci, NEC
 GSFC/Hoffman, R. A.

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NAG 5-971	Dartmouth College	3974	Ultraviolet spectra of subluminoous object systematic reanalysis of the archived ultraviolet spectra of white dwarfs		
<i>Period</i>	<i>Obligations</i>				
09/01/87-08/31/89	FY88: \$20,000	TOTAL: \$62,600			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wegner, G. A.	GSFC/Kondo, Y.	11-Astronomy			
NAG 5-1077	Dartmouth College	3975	High resolution Doppler imaging aurora Jupiter and Saturn		
<i>Period</i>	<i>Obligations</i>				
10/01/88-09/30/89	FY88: \$4,980	TOTAL: \$4,980			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hudson, M. K.	GSFC/Kondo, Y.	11-Astronomy			
NAGW 710	Dartmouth College	3976	On turbulence in plasmas		
<i>Period</i>	<i>Obligations</i>				
01/01/85-12/31/88	FY88: \$85,670	TOTAL: \$350,007			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Montgomery, D. C.	HQ-ES/Mellott, M. M. HQ-ES/Jones, W. V.	13-Physics			
NAGW 809	Dartmouth College	3977	The relationship between kinetic equilibrium and dynamic MHD models of magnetospheric ionosphere coupling		
<i>Period</i>	<i>Obligations</i>				
09/01/85-02/28/89	FY88: \$61,289	TOTAL: \$213,090			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hudson, M. K.	HQ-ES/Desch, M. D. HQ-ES/Parks, G.	13-Physics			
NAGW 1058	Dartmouth College	3978	Current driven double layers in a strongly magnetized laboratory plasma		
<i>Period</i>	<i>Obligations</i>				
04/01/87-03/31/88	FY88:	TOTAL: \$34,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hayes, M. A.	HQ-EE/Fitzenreiter, R. J. HQ-EE/Eastman, T. E.	13-Physics			
NAGW 1082	Dartmouth College	3979	Testing crustal heating and climatic change as alternative hypothesis for small valley origins		
<i>Period</i>	<i>Obligations</i>				
05/01/87-04/30/89	FY88: \$12,000	TOTAL: \$27,258			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brakenridge, G. R.	HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	32-Geological Sci			
NAGW 1169	Dartmouth College	3980	Turbulent processes in magnetospheric boundary layers		
<i>Period</i>	<i>Obligations</i>				
09/01/87-08/31/89	FY88: \$60,000	TOTAL: \$117,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lotko, W.	HQ-ES/Mellott, M. M. HQ-ES/Perry, T. W.	13-Physics			
NAS 5-28738	Dartmouth College	3981	The chemical evolution of matic intrusions in east Greenland based on lithologic mapping using thematic mapper data		
<i>Period</i>	<i>Obligations</i>				
05/24/85-04/24/89	FY88:	TOTAL: \$199,784			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Naslund, H. R.	GSFC/Oseroff, H.	32-Geological Sci			
NAS 5-29233	Dartmouth College	3982	ISTP theory investigation		
<i>Period</i>	<i>Obligations</i>				
10/01/85-06/30/88	FY88:	TOTAL: \$12,778			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hudson, M. K.	GSFC/O'brien, J.	13-Physics			
NASW 4049	Dartmouth College	3983	Lithologic mapping in forested areas		
<i>Period</i>	<i>Obligations</i>				
03/01/85-01/31/88	FY88:	TOTAL: \$79,055			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Birnie, R. W.	HQ-EE/Mark, P. M. HQ-EE/Murphy, R. E.	32-Geological Sci			
NGT 00-050-376	Dartmouth College	3984	NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>				
09/15/88-09/14/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kennedy, F.	HQ-XE/Owens, F. C.	46-Mech Engr			
NAG 1-462	University of New Hampshire - Durham	3985	Numerical simulation of transitional flows		
<i>Period</i>	<i>Obligations</i>				
03/07/84-09/30/86	FY88:	TOTAL: \$136,643			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Biringen, S.	LARC/Harvey, W. D.	41-Aero Engr			
NAG 1-890	University of New Hampshire - Durham	3986	Methane fluxes from Northern peatlands		
<i>Period</i>	<i>Obligations</i>				
07/01/88-08/31/89	FY88: \$110,000	TOTAL: \$110,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Crill, P. M.	LARC/Lawrence, J. D.	31-Atmos Sci			
Moore, B. E.					
NAG 2-521	University of New Hampshire - Durham	3987	Construction and analysis of stereoscopic solar flare observations by pvo SMM satellites		
<i>Period</i>	<i>Obligations</i>				
06/01/88-05/31/89	FY88: \$34,994	TOTAL: \$34,994			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Vestrand, W. T.	ARC/Lasher, L. E. ARC/Fimmel, R. O.	11-Astronomy			
NAG 5-515	University of New Hampshire - Durham	3988	Pioneer cosmic ray experiment data analysis and interpretation		
<i>Period</i>	<i>Obligations</i>				
03/15/85-08/14/89	FY88: \$50,640	TOTAL: \$191,240			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Webber, W. R.	GSFC/McDonald, F. B.	11-Astronomy			
NAG 5-720	University of New Hampshire - Durham	3989	Research relative to the SMM gamma ray experiment		
<i>Period</i>	<i>Obligations</i>				
11/15/85-11/14/88	FY88: \$153,137	TOTAL: \$1,849,298			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chupp, E. L.	GSFC/Vincent, G. B.	19-Phys Sci, NEC			

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NAG 6-12 University of New Hampshire - Durham 3990
Investigation of auroral electrodynamics and argon (plasma) release for controlled studies
Period *Obligations*
04/23/81-04/22/89 FY88: \$180,000 TOTAL: \$996,171
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arnoldy, R. L. GSFC/Early, L. J. 19-Phys Sci, NEC
Kaufmann, R. L. GSFC/Pless, R. H.

NAG 8-606 University of New Hampshire - Durham 3991
New cross section measurements and their applications to cosmic rays
Period *Obligations*
10/01/86-12/30/87 FY88: TOTAL: \$37,295
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Webber, W. R. MSFC/Harper, G. A. 11-Astronomy

NAGW 76 University of New Hampshire - Durham 3992
Theoretical studies group on the physics of the solar atmosphere and the solar wind
Period *Obligations*
06/01/80-10/31/88 FY88: \$282,586 TOTAL: \$2,118,479
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fisk, L. A. HQ-EE/Butler, D. M. 13-Physics
Holweg, J. V. HQ-EE/Curtis, S. A.

NAGW 512 University of New Hampshire - Durham 3993
Terminal decomposition and gaseous sulfur release from wetlands
Period *Obligations*
11/15/83-05/30/89 FY88: \$95,000 TOTAL: \$486,469
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hines, M. E. HQ-EB/Averner, M. M. 31-Atmos Sci
Lyons, W. B. HQ-EB/Devincenzi, D. L.
Gaudette, H. E.

NAGW 534 University of New Hampshire - Durham 3994
High energy gamma ray and neutron detectors
Period *Obligations*
03/15/84-10/31/88 FY88: \$89,900 TOTAL: \$385,599
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chupp, E. L. HQ-EZ/Ahluwalia, H. S. 13-Physics

NAGW 714 University of New Hampshire - Durham 3995
Planetary biogeochemical cycles and their perturbation by humans
Period *Obligations*
01/01/85-12/31/88 FY88: \$260,000 TOTAL: \$844,298
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, B. HQ-EB/Averner, M. M. 51-Biological Sci
Melillo, J. M. HQ-EE/Wickland, D.

NAGW 848 University of New Hampshire - Durham 3996
Combining satellite and insitu data in an ocean basin model
Period *Obligations*
01/01/86-12/31/88 FY88: \$33,853 TOTAL: \$246,824
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, B., III HQ-EE/Yoder, J. A. 33-Oceanography
Copeland, A. H. HQ-EE/Wilson, W. S.

NAGW 980 University of New Hampshire - Durham 3997
Global fronts of deforestation methodologies for retrospective and predictive modeling
Period *Obligations*
10/01/86-03/31/89 FY88: \$186,451 TOTAL: \$337,140
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, B. E. HQ-EE/Miller, T. L. 39-Env Sci, NEC
HQ-EE/Tuyahov, A. J.

NAGW 1145 University of New Hampshire - Durham 3998
Remote sensing of forest chemistry using aviris
Period *Obligations*
06/01/87-10/31/88 FY88: \$23,343 TOTAL: \$59,343
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aber, J. D. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
HQ-EE/Ruzek, M.

NAGW 1245 University of New Hampshire - Durham 3999
Spectrocharacterization of forest decline damages
Period *Obligations*
10/01/87-09/30/88 FY88: \$210,770 TOTAL: \$210,770
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rock, B. N. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
HQ-EE/Ruzek, M. J.

NAGW 1248 University of New Hampshire - Durham 4000
Ayriss data analysis for vegetation assessment
Period *Obligations*
10/01/87-09/30/88 FY88: \$90,651 TOTAL: \$90,651
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rock, B. N. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
HQ-EE/Ruzek, M. J.

NAS 5-26645 University of New Hampshire - Durham 4001
Definition phase of the D-1 detector subsystem for the imaging Compton telescope
Period *Obligations*
09/01/81-03/31/91 FY88: \$2,831,000 TOTAL: \$15,656,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lockwood, J. A. GSFC/Cooley, J. 11-Astronomy

NCA 2-238 University of New Hampshire - Durham 4002
Changes in total biochemical content of forests subject to chronic acid deposition
Period *Obligations*
07/15/87-07/14/89 FY88: TOTAL: \$37,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aber, J. D. ARC/Peterson, D. L. 54-Env Biology
ARC/Matson, P. A.

NCC 2-27 University of New Hampshire - Durham 4003
Controlled ecology life support system workshops: The biological problems and experimental program
Period *Obligations*
10/01/79-08/31/88 FY88: \$37,377 TOTAL: \$899,077
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, B. ARC/MacElroy, R. D. 51-Biological Sci

NCC 8-5 University of New Hampshire - Durham 4004
Search for weak gamma ray bursts as coincident events on separate experiments
Period *Obligations*
05/19/88-05/18/89 FY88: \$12,864 TOTAL: \$12,864
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ryan, J. M. MSFC/Wilson, R. B. 13-Physics
MSFC/Fishman, G. J.

NGL 30-002-021 University of New Hampshire - Durham 4005
Investigation and development of techniques for solar neutron and gamma ray detection
Period *Obligations*
02/28/66-01/31/89 FY88: \$150,000 TOTAL: \$2,539,425
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chupp, E. L. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
Forrest, D. J. HQ-EZ/Bunner, A. N.

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NGR 30-002-052 University of New Hampshire - Durham 4006

Research program in area of cosmic ray and X-ray astronomy

<i>Period</i>	<i>Obligations</i>	
02/12/70-09/30/88	FY88: \$140,000	TOTAL: \$2,268,558
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Webber, W. R.	HQ-ES/Mellott, M. M.	11-Astronomy
	HQ-EZ/Kaluzienski, L. J.	

NAG 1-545 Princeton University 4014

The structure of supersonic turbulent boundary layers on curved surfaces

<i>Period</i>	<i>Obligations</i>	
12/01/84-01/31/88	FY88:	TOTAL: \$256,440
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smits, J.	LARC/Haynes, D. A.	19-Phys Sci, NEC
Bogdonoff, S. M.	LARC/Dillon, J. L.	

NGT 00-050-216 University of New Hampshire - Durham 4007

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Messner, R. A.	HQ-XE/Owens, F. C.	45-Elec Engr

NAG 1-726 Princeton University 4015

Computational reacting gas dynamics

<i>Period</i>	<i>Obligations</i>	
11/14/86-11/13/88	FY88:	TOTAL: \$302,719
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lam, S. H.	LARC/Gnoffo, P. A.	41-Aero Engr

NGT 00-050-299 University of New Hampshire - Durham 4008

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$17,530	TOTAL: \$17,530
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnoldy, R. L.	HQ-XE/Owens, F. C.	13-Physics

NAG 1-834 Princeton University 4016

Intelligent guidance and control for wind shear encounter

<i>Period</i>	<i>Obligations</i>	
11/12/87-01/31/89	FY88: \$70,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stengel, R. F.	LARC/Hinton, D. A.	41-Aero Engr
	LARC/Schutte, P. C.	

NGT 29-004-800 University of New Hampshire - Durham 4009

NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/88	FY88:	TOTAL: \$43,505
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hollweg, J. V.	HQ-LE/Owens, F. C.	13-Physics

NAG 1-907 Princeton University 4017

Dynamics and control of an aerospace plane

<i>Period</i>	<i>Obligations</i>	
09/01/88-07/31/89	FY88: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mease, K. D.	LARC/Moreder, D. D.	41-Aero Engr

NSG 7411 University of New Hampshire - Durham 4010

Theoretical studies in solar particle physics

<i>Period</i>	<i>Obligations</i>	
10/01/77-10/30/88	FY88: \$72,820	TOTAL: \$543,085
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hollweg, J.	HQ-EZ/Ahluwalia, H. S.	13-Physics
	HQ-EZ/Bohlin, J. D.	

NAG 2-96 Princeton University 4018

Numerical calculation of transonic flows past complex aerodynamic configurations

<i>Period</i>	<i>Obligations</i>	
02/01/81-10/31/88	FY88: \$56,976	TOTAL: \$357,743
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jameson, A.	ARC/Hicks, R. M.	41-Aero Engr
Boker, T. J.	ARC/Cliff, J. E.	

NSG 7481 University of New Hampshire - Durham 4011

Application of a double Compton telescope to measurements of the 1-15 MeV extra-terrestrial gamma rays

<i>Period</i>	<i>Obligations</i>	
03/01/78-01/31/88	FY88:	TOTAL: \$314,919
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lockwood, J. A.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
Webber, W. R.	HQ-EZ/Cline, T. L.	

NAG 2-244 Princeton University 4019

Studies in helicopter aerodynamics and control

<i>Period</i>	<i>Obligations</i>	
07/01/83-09/30/87	FY88:	TOTAL: \$437,808
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Curtiss, H. C.	ARC/Decker, W. A.	41-Aero Engr
McKillip, R. M., Jr.	ARC/Ciolani, L. S.	

NEW JERSEY

NAG 1-186 Princeton University 4012

Accelerated solution methods for inviscid transonic flows

<i>Period</i>	<i>Obligations</i>	
12/03/81-03/02/87	FY88:	TOTAL: \$439,941
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jameson, A.	LARC/Salas, M. D.	41-Aero Engr
Baker, T. J.	LARC/Keller, J. D.	

NAG 2-397 Princeton University 4020

Ionic mechanisms subserving mechano sensory transduction and neural integration in statocyst hair cells of hermissenda

<i>Period</i>	<i>Obligations</i>	
06/01/86-06/30/88	FY88: \$32,698	TOTAL: \$126,689
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Farley, J.	ARC/Ross, M. D.	51-Biological Sci
	ARC/Oyama, J.	

NAG 1-494 Princeton University 4013

Study of a special-purpose Navier-Stokes computer

<i>Period</i>	<i>Obligations</i>	
07/01/84-03/31/89	FY88: \$303,611	TOTAL: \$1,686,179
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nosenchuck, D. M.	LARC/Zang, T. A.	41-Aero Engr
Littman, M. G.	LARC/Kumar, A.	

NAG 2-415 Princeton University 4021

Experimental studies in system identification of helicopter rotor dynamics

<i>Period</i>	<i>Obligations</i>	
09/01/86-10/31/88	FY88: \$36,916	TOTAL: \$109,814
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKillip, R. M.	ARC/Jacklin, S. A.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NAG 2-497 **Princeton University** **4022**
Far infrared photometry and mapping of Virgo cluster galaxies
Period *Obligations*
02/01/88-10/31/88 FY88: \$2,000 TOTAL: \$2,000
Prin. Invest. NASA Tech. Officer CASE Category
Knapp, G. R. ARC/Haughney, L. C. 11-Astronomy

NAG 5-899 **Princeton University** **4030**
A terrestrial water balance for the first ISLSCP field experiment
Period *Obligations*
05/01/87-10/31/89 FY88: \$68,000 TOTAL: \$123,505
Prin. Invest. NASA Tech. Officer CASE Category
Milly, P. C. GSFC/Owe, M. 39-Env Sci, NEC
Wood, E. F. GSFC/Hall, F.

NAG 3-259 **Princeton University** **4023**
Behavior of fluid globules in external fields
Period *Obligations*
02/20/82-11/30/89 FY88: \$70,000 TOTAL: \$305,058
Prin. Invest. NASA Tech. Officer CASE Category
Saville, D. A. LERC/Chai, A. T. 13-Physics
LERC/Salzman, J. A.

NAG 5-1004 **Princeton University** **4031**
Interstellar lines in the spectrum of supernova 1987a
Period *Obligations*
09/15/87-09/14/88 FY88: TOTAL: \$14,999
Prin. Invest. NASA Tech. Officer CASE Category
Jenkins, E. B. GSFC/Kondo, Y. 11-Astronomy

NAG 3-447 **Princeton University** **4024**
Roles of fluid motion and other transport phenomena in morphology of materials
Period *Obligations*
07/15/83-10/11/87 FY88: TOTAL: \$180,750
Prin. Invest. NASA Tech. Officer CASE Category
Saville, D. A. LERC/Chai, A. 47-Materials Engr
Russell, W. B. LERC/Serafini, T. T.

NAG 5-1014 **Princeton University** **4032**
Low dispersion observations of bright stars
Period *Obligations*
10/15/87-10/14/89 FY88: \$29,899 TOTAL: \$39,953
Prin. Invest. NASA Tech. Officer CASE Category
Fitzpatrick, E. L. GSFC/Kondo, Y. 11-Astronomy
Bless, C.
Pitts, R. E.

NAG 3-859 **Princeton University** **4025**
Disorder order transitions in colloidal suspensions computer simulations and experimental observations
Period *Obligations*
01/20/88-02/19/90 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Debenedetti, P. G. LERC/Kiser, J. D. 43-Chem Engr
Russel, W. B.

NAG 8-597 **Princeton University** **4033**
The fluid mechanics of continuous flow electrophoresis
Period *Obligations*
08/25/86-02/25/89 FY88: TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Saville, D. A. MSFC/Rhodes, P. H. 45-Elec Engr

NAG 3-915 **Princeton University** **4026**
Optimal combination of orbit-changing mechanisms for space transportation
Period *Obligations*
06/15/88-06/14/89 FY88: \$75,000 TOTAL: \$75,000
Prin. Invest. NASA Tech. Officer CASE Category
Mease, K. LERC/Balkanyi, L. R. 42-Astro Engr
Vinh, N. X. LERC/Spurlock, O. F.

NAG 8-749 **Princeton University** **4034**
The roles of fluid motion and other transport phenomena in the morphology of materials
Period *Obligations*
09/01/88-08/31/89 FY88: \$135,000 TOTAL: \$135,000
Prin. Invest. NASA Tech. Officer CASE Category
Saville, D. A. MSFC/Snyder, R. S. 43-Chem Engr

NAG 3-926 **Princeton University** **4027**
Crossing and reflecting three-dimensional shock waves
Period *Obligations*
08/15/88-08/15/89 FY88: \$80,026 TOTAL: \$80,026
Prin. Invest. NASA Tech. Officer CASE Category
Bogdonoff, S. M. LERC/Porro, A. R. 41-Aero Engr
LERC/Benson, T. J.

NAG 9-158 **Princeton University** **4035**
Thermal tectonic and fluid flow history of Archean lower crust slave province northwest territories
Period *Obligations*
06/01/86-06/01/88 FY88: TOTAL: \$38,000
Prin. Invest. NASA Tech. Officer CASE Category
Hollister, L. S. JSC/Phinney, W. C. 39-Env Sci, NEC

NAG 5-491 **Princeton University** **4028**
Influence of scale and variability in the parametrization of hydrological processes
Period *Obligations*
02/01/85-03/31/88 FY88: TOTAL: \$245,000
Prin. Invest. NASA Tech. Officer CASE Category
Wood, E. F. GSFC/Gurney, R. J. 32-Geological Sci
Milly, P. C. GSFC/Camillo, P. J.

NAG 9-190 **Princeton University** **4036**
Argon analyses of selected mantle xenoliths and diamond inclusions from southern African kimberlites
Period *Obligations*
01/01/87-07/01/88 FY88: TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
Onstott, T. C. JSC/Phinney, W. C. 32-Geological Sci

NAG 5-616 **Princeton University** **4029**
Interstellar medium absorption profile spectrograph (IMAPS)
Period *Obligations*
01/01/83-10/31/88 FY88: \$758,966 TOTAL: \$3,255,663
Prin. Invest. NASA Tech. Officer CASE Category
Jenkins, E. B. GSFC/Early, L. J. 13-Physics
GSFC/Pless, R. H.

NAGW 445 **Princeton University** **4037**
Map galactic radiation at wave length = 1 cm
Period *Obligations*
06/01/83-03/31/88 FY88: TOTAL: \$415,397
Prin. Invest. NASA Tech. Officer CASE Category
Wilkinson, D. HQ-EZ/Bogges, N. W. 11-Astronomy
HQ-EZ/Weiler, E. J.

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NAGW 477 Princeton University 4038
Copernicus data reduction and analysis
Period *Obligations*
09/01/83-06/30/89 FY88: TOTAL: \$327,353
Prin. Invest. NASA Tech. Officer CASE Category
Rogerson, J. B., Jr. HQ-EZ/Stencel, R. E. 11-Astronomy
Spitzer, L., Jr. HQ-EZ/Bogges, N. W.

NAS 5-30110 Princeton University 4046
Space telescope imaging spectrograph program support
Period *Obligations*
06/17/87-09/30/89 FY88: \$10,000 TOTAL: \$19,000
Prin. Invest. NASA Tech. Officer CASE Category
Jenkins, E. GSFC/Vitagliano, D. 11-Astronomy

NAGW 765 Princeton University 4039
The universe at moderate redshift
Period *Obligations*
07/01/85-02/28/89 FY88: \$260,092 TOTAL: \$904,418
Prin. Invest. NASA Tech. Officer CASE Category
Ostriker, J. P. HQ-ES/Mellott, M. M. 11-Astronomy
HQ-EZ/Bunner, A. N.

NAS 8-32614 Princeton University 4047
Develop and test mathematical models of the three dimensional flow field and particle motions
Period *Obligations*
08/23/77-08/31/86 FY88: TOTAL: \$579,585
Prin. Invest. NASA Tech. Officer CASE Category
Saville, D. A. MSFC/Fogle, W. 51-Biological Sci
MSFC/Williams, J. R.

NAGW 833 Princeton University 4040
Investigation of relationship between soil biogeochemistry and methane generation in panamanian tropical ecosystems
Period *Obligations*
10/01/85-04/31/88 FY88: TOTAL: \$229,688
Prin. Invest. NASA Tech. Officer CASE Category
Lundberg, N. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
HQ-EE/Watson, R. T.

NCC 1-131 Princeton University 4048
Research in high-speed gas dynamics
Period *Obligations*
09/01/88-12/31/88 FY88: \$125,000 TOTAL: \$125,000
Prin. Invest. NASA Tech. Officer CASE Category
Bogdonoff, S. M. LARC/Dwoyer, D. L. 41-Aero Engr
LARC/Whitehead, A. H.

NAGW 1392 Princeton University 4041
Research into the influence of spatial
Period *Obligations*
03/01/88-02/28/89 FY88: \$80,000 TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Wood, E. F. HQ-EE/Asrar, G. 99-Multi-Discip
HQ-EE/Murphy, R. E.

NGL 31-001-007 Princeton University 4049
Theoretical and experimental studies of ultraviolet phenomena of astronomical interest and galactic gas dynamics
Period *Obligations*
05/06/63-04/30/89 FY88: \$50,090 TOTAL: \$2,397,643
Prin. Invest. NASA Tech. Officer CASE Category
Draine, B. T. HQ-EZ/Gillett, F. C. 11-Astronomy
HQ-EZ/Weiler, E. J.

NAS 1-17234 Princeton University 4042
Inference of atmospheric parameters from shuttle upper atmosphere spectrometer (SUMS) experiment
Period *Obligations*
12/17/82-12/31/88 FY88: TOTAL: \$189,269
Prin. Invest. NASA Tech. Officer CASE Category
Cheng, S. I. LARC/Blanchard, R. C. 41-Aero Engr
LARC/Sutton, K.

NGL 31-001-252 Princeton University 4050
Air traffic control technology
Period *Obligations*
11/15/71-01/31/91 FY88: \$116,311 TOTAL: \$1,304,975
Prin. Invest. NASA Tech. Officer CASE Category
Stengel, R. F. LARC/Morrell, F. R. 41-Aero Engr
Sweet, L. M.

NAS 3-24640 Princeton University 4043
Scientific support for a Space Shuttle droplet burning experiment
Period *Obligations*
05/29/85-11/20/91 FY88: \$242,572 TOTAL: \$709,728
Prin. Invest. NASA Tech. Officer CASE Category
Williams, F. A. LERC/Haggard, J. 49-Engr, NEC
Dryer, F. L.

NGT 00-050-153 Princeton University 4051
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Wood, E. F. HQ-XE/Owens, F. C. 32-Geological Sci

NAS 5-27590 Princeton University 4044
Provide pre-launch science data requirements and post launch data analysis for COBE
Period *Obligations*
05/31/83-05/30/91 FY88: TOTAL: \$193,150
Prin. Invest. NASA Tech. Officer CASE Category
Wilkinson, D. T. GSFC/Mather, J. 11-Astronomy

NGT 00-050-243 Princeton University 4052
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/89 FY88: \$31,000 TOTAL: \$31,000
Prin. Invest. NASA Tech. Officer CASE Category
Sarmiento, J. HQ-XE/Owens, F. C. 19-Phys Sci, NEC

NAS 5-29142 Princeton University 4045
Follow on contract to NAS 5-25084 for the continuation of studies on the Hubble space telescope Goddard project
Period *Obligations*
06/19/85-06/19/90 FY88: \$87,000 TOTAL: \$477,000
Prin. Invest. NASA Tech. Officer CASE Category
Groth, E. J. GSFC/Locke, M. 11-Astronomy

NGT 00-050-324 Princeton University 4053
NASA graduate student researchers program
Period *Obligations*
09/01/88-08/31/89 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Pierrehumbert, R. T. HQ-XE/Owens, F. C. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NGT 00-050-373 Princeton University 4054
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Dryer, F. L. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-219 Rutgers State University - New Brunswick 4062
 NASA graduate student researchers program
Period Obligations
 09/02/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Hewins, R. HQ-XE/Owens, F. C. 12-Chemistry

NSG 5248 Princeton University 4055
 Observational research on the IUE satellite
Period Obligations
 03/01/78-10/31/88 FY88: TOTAL: \$93,941
Prin. Invest. NASA Tech. Officer CASE Category
 Jenkins, E. B. GSFC/Kondo, Y. 11-Astronomy
 Snow, T. P.
 Joseph, C. L.

NAG 1-829 Rutgers State University - Piscataway 4063
 An applications investigation and guidelines for probabilistic modeling using opsmode1 operations model
Period Obligations
 12/01/87-02/29/88 FY88: \$2,500 TOTAL: \$2,500
Prin. Invest. NASA Tech. Officer CASE Category
 Luxhoj, J. T. LARC/Goslee, J. W. 29-Math/Computer, NEC

NSG 7302 Princeton University 4056
 New radiometers for balloon 3 K isotropy experiment
Period Obligations
 11/15/76-10/31/88 FY88: \$32,000 TOTAL: \$355,856
Prin. Invest. NASA Tech. Officer CASE Category
 Wilkinson, D. T. HQ-EZ/Bogges, N. W. 11-Astronomy
 HQ-EZ/Weiler, E. J.

NAG 1-587 Stevens Institute of Technology 4064
 Completion of ggloss gate level simulation language
Period Obligations
 07/01/85-11/30/88 FY88: \$54,757 TOTAL: \$154,757
Prin. Invest. NASA Tech. Officer CASE Category
 Swern, F. L. LARC/Bavuso, S. J. 29-Math/Computer, NEC
 LARC/Pitts, F. L.

NSG 7618 Princeton University 4057
 Photon counting image sensor development for astronomical applications
Period Obligations
 07/01/79-09/14/86 FY88: TOTAL: \$439,796
Prin. Invest. NASA Tech. Officer CASE Category
 Jenkins, E. B. HQ-EZ/Weiler, E. J. 11-Astronomy
 Timothy, J. G. HQ-EZ/Bogges, N. W.

NGT 00-090-008 Stevens Institute of Technology 4065
 Pre college outreach
Period Obligations
 10/01/87-09/30/89 FY88: \$48,177 TOTAL: \$78,520
Prin. Invest. NASA Tech. Officer CASE Category
 Prather, E. N. HQ-U/Margolis, M. S. 29-Math/Computer, NEC
 HQ-U/Warren, L. S.

NAG 9-26 Rutgers State University - New Brunswick 4058
 Beryllium isotopes in meteorites
Period Obligations
 02/01/83-03/01/89 FY88: \$41,720 TOTAL: \$158,123
Prin. Invest. NASA Tech. Officer CASE Category
 Herzog, G. F. JSC/Browne, I. D. 11-Astronomy
 Kruse, T. H.

NAS 9-17276 Univ of Medicine And Dentistry 4066
 Study of protein metabolism during space flight
Period Obligations
 11/01/84-10/01/90 FY88: \$128,000 TOTAL: \$604,085
Prin. Invest. NASA Tech. Officer CASE Category
 Stein, P. JSC/Newkirk, K. 56-Medical Sciences

NAG 9-35 Rutgers State University - New Brunswick 4059
 Metal-silicate relationships in differentiated meteorites
Period Obligations
 02/01/83-02/01/89 FY88: \$45,000 TOTAL: \$200,060
Prin. Invest. NASA Tech. Officer CASE Category
 Hewins, R. H. JSC/Browne, I. D. 32-Geological Sci

NGT 00-070-033 Univ of Medicine And Dentistry 4067
 Graduate student researchers underrepresented minority focus program
Period Obligations
 06/15/87-06/14/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Stein, T. P. HQ-XE/Owens, F. C. 51-Biological Sci

NAG 9-304 Rutgers State University - New Brunswick 4060
 Petrology of polymict breccias on the Moon and basaltic achondrite parent body
Period Obligations
 08/01/88-08/01/89 FY88: \$18,466 TOTAL: \$18,466
Prin. Invest. NASA Tech. Officer CASE Category
 Delaney, J. S. JSC/Browne, I. D. 32-Geological Sci

NEW MEXICO

NCA 2-61 Rutgers State University - New Brunswick 4061
 Stability of flow past a circular cylinder (Joint Research Interchange)
Period Obligations
 09/01/85-08/31/87 FY88: TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
 Zebib, A. ARC/Tobak, M. 41-Aero Engr
 ARC/Schiff, L. B.

NAG 5-767 New Mexico Institute of Mining & Tech 4068
 Ultraviolet observations of selected astronomical sources
Period Obligations
 05/01/86-09/30/89 FY88: \$23,015 TOTAL: \$86,015
Prin. Invest. NASA Tech. Officer CASE Category
 Shore, S. N. GSFC/Kondo, Y. 11-Astronomy
 Brown, D. N.
 Sonneborn, G.

**NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)**

NAG 8-66 New Mexico Institute of Mining & Tech 4069

Cloud lightning observations from U2 aircraft

<i>Period</i>	<i>Obligations</i>	
05/12/86-03/26/89	FY88: \$46,354	TOTAL: \$66,354
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brook, M.	MSFC/Blakeslee, R.	45-Elec Engr
	MSFC/Christian, H. J.	

NAG 8-751 New Mexico Institute of Mining & Tech 4070

Aircraft measurements of electrified clouds at Kennedy Space Center

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$127,647	TOTAL: \$127,647
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, J. J.	MSFC/Christian, H. J.	31-Atmos Sci

NCA 5-71 New Mexico Institute of Mining & Tech 4071

Cometary and astrophysical research activities

<i>Period</i>	<i>Obligations</i>	
11/01/76-01/31/89	FY88: \$21,620	TOTAL: \$418,320
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, E.	GSFC/Niedier, M.	11-Astronomy
Holmes, C. R.		

NCC 2-364 New Mexico Institute of Mining & Tech 4072

Evolution of photon and particle spectra in compact luminous objects

<i>Period</i>	<i>Obligations</i>	
08/01/85-04/30/89	FY88: \$12,500	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eilek, J. A.	ARC/Caroft, L. J.	11-Astronomy

NAG 2-453 New Mexico State University - Las Cruces 4073

A formal method for knowledge elicitation and representation applied to the design of Numan computer interfaces

<i>Period</i>	<i>Obligations</i>	
07/01/87-10/31/88	FY88: \$105,985	TOTAL: \$146,985
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Papp, K. R.	ARC/Remington, R.	69-Psych, NEC
McDonald, J. E.	ARC/Shafto, M. G.	
Schaneveldt, R. W.		

NAG 2-474 New Mexico State University - Las Cruces 4074

Transient multigrid methods for the floating point T100 hypercube

<i>Period</i>	<i>Obligations</i>	
09/01/87-05/31/88	FY88:	TOTAL: \$25,242
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hills, R. G.	ARC/Stevens, K. G.	22-Computer Science

NAG 5-638 New Mexico State University - Las Cruces 4075

Weight reduction of the NMSU balloon-borne magnet spectrometer and related studies

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/87	FY88:	TOTAL: \$49,731
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Golden, R. L.	GSFC/Early, L. J.	13-Physics
	GSFC/Needleman, H. N.	

NAG 5-847 New Mexico State University - Las Cruces 4076

Astromog prototype multiwire proportional chambers

<i>Period</i>	<i>Obligations</i>	
09/15/86-09/14/89	FY88: \$72,677	TOTAL: \$92,887
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Golden, R. L.	GSFC/Ormes, J. F.	42-Astro Engr

NAGW 110 New Mexico State University - Las Cruces 4077

Continuation of a cosmic ray research program using a superconducting magnet spectrometer

<i>Period</i>	<i>Obligations</i>	
08/01/80-12/31/88	FY88: \$204,993	TOTAL: \$1,066,555
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Golden, R. L.	HQ-ES/Mellott, M. M.	11-Astronomy
	HQ-EZ/Bunner, A.	

NAGW 645 New Mexico State University - Las Cruces 4078

Analysis of historical data related to the energy balance in Jupiter's atmosphere

<i>Period</i>	<i>Obligations</i>	
08/15/84-08/14/87	FY88:	TOTAL: \$37,660
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beebe, R. F.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Quaide, W. L.	

NAGW 1172 New Mexico State University - Las Cruces 4079

Analysis of Voyager Z data of the atmosphere of Uranus

<i>Period</i>	<i>Obligations</i>	
10/01/87-09/30/88	FY88:	TOTAL: \$38,910
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beebe, R.	HQ-EL/Quaide, W. L.	19-Phys Sci, NEC
	HQ-EL/Fox, K.	

NAGW 1418 New Mexico State University - Las Cruces 4080

Operation of the New Mexico State University balloon borne superconducting magnet as a cosmic ray observatory

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$151,507	TOTAL: \$151,507
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Golden, R. L.	HQ-ES/Mellott, M. M.	13-Physics
	HQ-ES/Jones, W. V.	

NAGW 1449 New Mexico State University - Las Cruces 4081

Processing of NASA imaging on an IBM-AT prototype system

<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$40,472	TOTAL: \$40,472
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beebe, R.	HQ-EL/Fox, K.	19-Phys Sci, NEC

NAS 5-26662 New Mexico State University - Las Cruces 4082

Provide developmental and technological support for the ultraviolet imaging telescope (UIT) shuttle electronics

<i>Period</i>	<i>Obligations</i>	
08/12/81-01/31/89	FY88:	TOTAL: \$643,699
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gilcrease, A.	GSFC/Blum, A.	45-Elec Engr

NAS 5-28928 New Mexico State University - Las Cruces 4083

Field and analytical engineering support

<i>Period</i>	<i>Obligations</i>	
05/01/85-04/30/89	FY88: \$2,013,865	TOTAL: \$6,017,864
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lane, K.	GSFC/West, W. W.	41-Aero Engr
	GSFC/Powell, W. R.	

**NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)**

NAS 5-29149 New Mexico State University - Las Cruces 4084

Spartan/gas/shuttle related programs engineering support
Period *Obligations*
 05/16/85-04/30/89 FY88: \$2,717,396 TOTAL: \$8,394,009
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bawcom, D. GSFC/Pincus, B. R. 49-Engr, NEC
 Connell, H. L.
 Islas, S. W.

NCC 5-40 New Mexico State University - Las Cruces 4091

Telemetry downlink interfaces level-zero processing
Period *Obligations*
 10/01/88-09/30/90 FY88: \$500,003 TOTAL: \$500,003
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Carden, F. GSFC/Smith, G. A. 41-Aero Engr
 Horan, S. GSFC/Pritchard, J. A.
 Taylor, J. M.

NAS 5-29770 New Mexico State University - Las Cruces 4085

Operation of the Palestine balloon facility
Period *Obligations*
 08/15/87-09/30/87 FY88: TOTAL: \$99,257
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wells, R. T. GSFC/Nock, R. S. 41-Aero Engr

NGL 32-003-001 New Mexico State University - Las Cruces 4092

Photographic patrol and study of physical conditions on the Moon and planets
Period *Obligations*
 04/15/61-09/30/89 FY88: \$68,276 TOTAL: \$2,435,097
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Beebe, R. F. HQ-EL/Brinton, H. C. 11-Astronomy
 Van Aken, J. M. HQ-EL/Rahe, J. H.

NAS 5-29800 New Mexico State University - Las Cruces 4086

Operation and maintenance of the national scientific balloon facility
Period *Obligations*
 10/01/87-09/30/90 FY88: \$12,749,958 TOTAL: \$14,844,912
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Halligan, J. E. GSFC/Nock, R. S. 39-Env Sci, NEC
 GSFC/Needleman, H. C.

NGT 00-070-070 New Mexico State University - Las Cruces 4093

Graduate student researchers underrepresented minority focus program
Period *Obligations*
 01/01/88-12/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hills, R. G. HQ-XE/Owens, F. C. 46-Mech Engr

NAS 5-30105 New Mexico State University - Las Cruces 4087

Provide support to the SSBUV experiment
Period *Obligations*
 05/01/87-04/30/90 FY88: TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Unavailable GSFC/Cannon, R. 41-Aero Engr

NGT 00-070-079 New Mexico State University - Las Cruces 4094

Graduate student researchers underrepresented minority focus program
Period *Obligations*
 07/06/87-07/05/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McDonald, J. HQ-XE/Owens, F. C. 22-Computer Science
 Paap, K.

NAS 5-30125 New Mexico State University - Las Cruces 4088

Support to low energy antiproton experiment
Period *Obligations*
 07/09/87-07/08/88 FY88: TOTAL: \$114,303
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Golden, R. L. GSFC/Ormes, J. A. 13-Physics

NAG 5-851 University of New Mexico 4095

Analysis of decertification processes in the American southwest
Period *Obligations*
 09/15/86-02/28/89 FY88: \$90,000 TOTAL: \$223,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Morain, S. A. GSFC/Oseroff, H. 19-Phys Sci, NEC

NAS 9-95618 New Mexico State University - Las Cruces 4089

Data analysis and development system
Period *Obligations*
 09/23/88-05/01/89 FY88: \$545,570 TOTAL: \$545,570
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Craddock, W. JSC/Lerdal, R. 22-Computer Science

NAG 5-1026 University of New Mexico 4096

Ground based studies of radio and infrared emissions from the planet Mercury
Period *Obligations*
 12/15/87-12/14/88 FY88: \$20,880 TOTAL: \$20,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burns, J. O. GSFC/Baker, D. N. 13-Physics
 Zeilik, M.
 Gisler, G.

NCA 2-328 New Mexico State University - Las Cruces 4090

Preliminary evaluation of waste processing in a CELSS
Period *Obligations*
 07/01/88-06/30/89 FY88: \$6,560 TOTAL: \$6,560
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Jacquez, R. B. ARC/Wydeven, T. 44-Civil Engr

NAG 8-668 University of New Mexico 4097

X ray emission from poor clusters of galaxies
Period *Obligations*
 07/15/87-02/14/89 FY88: TOTAL: \$29,635
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Halpern, J. MSFC/Harper, B. A. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)**

NAG 9-30 University of New Mexico 4098
The formation and evolution of stony meteorites
Period *Obligations*
02/15/83-08/01/88 FY88: \$232,257 TOTAL: \$1,423,620
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Keil, K. JSC/Browne, I. D. 32-Geological Sci
Taylor, G. J.
Scott, E. R.

NAG 9-160 University of New Mexico 4099
Analytical electron microscopy of fine-grained phases in primitive interplanetary dust particles and carbonaceous chondrites
Period *Obligations*
04/01/86-04/01/89 FY88: \$101,000 TOTAL: \$240,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rietmeijer, F. J. JSC/Browne, I. D. 32-Geological Sci

NAG 9-245 University of New Mexico 4100
Astronomical observatories on the Moon
Period *Obligations*
07/15/87-07/15/89 FY88: \$25,000 TOTAL: \$122,608
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burns, J. O. JSC/Duke, M. B. 42-Astro Engr
Taylor, G. J. JSC/Roberts, B. B.
Johnson, S.

NASW 4191 University of New Mexico 4101
Operation of technology application center for dissemination of NASA technology
Period *Obligations*
07/01/86-06/30/88 FY88: \$196,455 TOTAL: \$574,455
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morain, S. A. HQ/Bivins, R. 99-Multi-Discip

NGR 32-004-002 University of New Mexico 4102
Surface recombination effects with magnetoresistance as applied to high current, low voltage switching
Period *Obligations*
06/20/82-03/31/88 FY88: TOTAL: \$97,672
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grannemann, W. W. LERC/Schwartz, F. 75-Political Sci

NGR 32-004-062 University of New Mexico 4103
Search for evidence of dynamic process
Period *Obligations*
06/22/70-03/31/89 FY88: TOTAL: \$437,290
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Elston, W. E. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NGT 00-070-003 University of New Mexico 4104
Graduate student researchers underrepresented minority focus program
Period *Obligations*
01/01/87-12/31/88 FY88: \$14,439 TOTAL: \$32,439
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morain, S. A. HQ-LE/Owens, F. C. 32-Geological Sci

NGT 32-004-770 University of New Mexico 4105
A preoperative education program
Period *Obligations*
07/25/77-06/30/89 FY88: \$100,000 TOTAL: \$286,311
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Purvines, G. B. HQ-U/Gutierrez, O. A. 49-Engr, NEC

NGT 32-004-771 University of New Mexico 4106
NASA graduate student researchers program
Period *Obligations*
05/15/85-12/15/88 FY88: TOTAL: \$35,933
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kleil, K. HQ-LE/Owens, F. C. 32-Geological Sci

NEW YORK

NCC 3-59 Alfred University 4107
Interfacial bond characterization ceramic composites
Period *Obligations*
03/01/86-02/27/88 FY88: TOTAL: \$42,912
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Laughner, J. W. LARC/Shaw, N. J. 47-Materials Engr
LARC/Dicarlo, J. A.

NAG 1-418 Brooklyn College 4108
Theoretical studies of heavy-ion collisions
Period *Obligations*
10/01/83-11/16/86 FY88: TOTAL: \$56,935
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Franco, V. LARC/Townsend, L. W. 13-Physics
LARC/Conway, E. J.

NAG 5-711 Brooklyn College 4109
Research relative to database interfaces on heterogeneous database systems
Period *Obligations*
09/01/85-03/31/88 FY88: TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrow, K. GSFC/Jacobs, B. 22-Computer Science
GSFC/Berbert, J.

NAG 1-377 City College of New York 4110
The measurement of Reynolds stresses in turbulent compressible flow
Period *Obligations*
06/01/83-03/31/89 FY88: \$150,000 TOTAL: \$1,150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, J. A., III LARC/Budhnell, D. M. 41-Aero Engr
LARC/Anders, J. B.

NAG 1-499 City College of New York 4111
Photodynamics and physics behind tunable solid state lasers
Period *Obligations*
07/01/84-10/31/87 FY88: TOTAL: \$135,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alfano, R. R. LARC/Byrik, C. E. 13-Physics
LARC/Nash, P. L.

NAG 1-810 City College of New York 4112
Nonradiative relaxation and laser action in tunable solid state laser crystals
Period *Obligations*
09/01/87-10/31/88 FY88: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alfano, R. R. LARC/Allario, F. 13-Physics
LARC/Byvik, C. E.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 3-122 City College of New York 4113
Experimental study of turbulence in blade end wall corner region
Period Obligations
10/20/80-09/30/88 FY88: TOTAL: \$326,134
Prin. Invest. NASA Tech. Officer CASE Category
Raj, R. LERC/Boldman, D. R. 41-Aero Engr

NAG 5-372 City College of New York 4114
Theoretical research in solar and atmospheric physics
Period Obligations
10/01/83-01/31/88 FY88: TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Lea, R. M. GSFC/Canuto, V. C. 31-Atmos Sci

NCA 2-186 City College of New York 4115
Can a binary system have a circumstellar disk
Period Obligations
12/15/86-09/30/88 FY88: TOTAL: \$10,500
Prin. Invest. NASA Tech. Officer CASE Category
Yuan, C. ARC/Cassen, P. 11-Astronomy

NGT 00-070-026 City College of New York 4116
Graduate student researchers underrepresented minority focus program
Period Obligations
09/01/87-08/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Alfano, R. R. HQ-XE/Owens, F. C. 45-Elec Engr

NGT 00-070-046 City College of New York 4117
NASA graduate student researchers program
Period Obligations
09/01/87-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Raj, R. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-070-053 City College of New York 4118
NASA graduate student researchers program
Period Obligations
10/01/87-09/30/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, J. A. HQ-XE/Owens, F. C. 13-Physics

NGT 00-070-084 City College of New York 4119
Graduate student researchers underrepresented minority focus program
Period Obligations
09/01/88-08/31/89 FY88: \$15,120 TOTAL: \$15,120
Prin. Invest. NASA Tech. Officer CASE Category
Pierson, W. J. HQ-XE/Owens, F. C. 99-Multi-Discip

NAG 5-763 City University of Ny - Staten Island 4120
Resident database interfaces to the David systems, a heterogeneous distributed database management system
Period Obligations
04/15/86-09/30/88 FY88: TOTAL: \$99,652
Prin. Invest. NASA Tech. Officer CASE Category
Moroh, M. GSFC/Jacobs, B. E. 22-Computer Science
GSFC/Berbert, J. H.

NAGW 690 City University of New York System 4121
Remote sensing research on radar backscatters theory and on improving conventional methods for measuring winds at sea by means of the Seasat SASS data and comparison data sets
Period Obligations
12/01/84-11/30/88 FY88: \$119,999 TOTAL: \$459,979
Prin. Invest. NASA Tech. Officer CASE Category
Pierson, W. J. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAG 1-397 Clarkson University 4122
Bridgman crystal growth
Period Obligations
08/05/83-01/31/89 FY88: \$95,174 TOTAL: \$331,019
Prin. Invest. NASA Tech. Officer CASE Category
Carlson, F. M. LARC/Fripp, A. L. 47-Materials Engr
LARC/Clark, I. O.

NAG 3-818 Clarkson University 4123
Computer aided modeling and prediction of performance of the modified Lundell class of alternators in space station solar dynamics power systems
Period Obligations
08/26/87-08/24/89 FY88: \$141,184 TOTAL: \$176,184
Prin. Invest. NASA Tech. Officer CASE Category
Demerdash, N. A. LERC/Secunde, R. R. 45-Elec Engr
LERC/Hojnicki, J. S.

NAG 8-480 Clarkson University 4124
Influence of connection on microstructure
Period Obligations
06/15/84-12/31/87 FY88: TOTAL: \$200,378
Prin. Invest. NASA Tech. Officer CASE Category
Wilcox, W. R. MSFC/Reeves, F. 43-Chem Engr

NAG 8-541 Clarkson University 4125
Modelling directional solidification
Period Obligations
09/01/85-01/31/89 FY88: TOTAL: \$280,000
Prin. Invest. NASA Tech. Officer CASE Category
Wilcox, W. R. MSFC/Grant, H. 43-Chem Engr

NAGW 910 Clarkson University 4126
Zonally averaged model of dynamics chemistry and radiation for the atmosphere
Period Obligations
07/01/86-11/30/88 FY88: \$110,000 TOTAL: \$315,044
Prin. Invest. NASA Tech. Officer CASE Category
Tung, K. K. HQ-EE/Miller, T. L. 31-Atmos Sci
HQ-EE/Prather, M. J.

NAGW 976 Clarkson University 4127
Establishment of a center for the commercial development of space
Period Obligations
09/01/86-09/30/88 FY88: \$1,000,000 TOTAL: \$2,000,000
Prin. Invest. NASA Tech. Officer CASE Category
Wilcox, W. R. HQ-IC/Oran, W. 51-Biological Sci
Hoekstra, B. HQ-IC/Brown, J. A.

NAS 8-32944 Clarkson University 4128
Experiment for materials processing in space, physical phenomena in containerless glass processing
Period Obligations
02/23/78-01/31/90 FY88: \$85,000 TOTAL: \$1,164,502
Prin. Invest. NASA Tech. Officer CASE Category
Subramanian, R. S. MSFC/Fogle, V. 13-Physics
Cole, R. MSFC/Johnson, J. L.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 5-823	Columbia University	4145	Ultraviolet observations of selected astimmical sources <i>Period</i> 07/01/86-08/31/88 <i>Prin. Invest.</i> Halpern, J. P. Edelson, R. A. Monier, R.	FY88: <i>NASA Tech. Officer</i> GSFC/Kondo, Y.	TOTAL: \$93,500 <i>CASE Category</i> 11-Astronomy
NAG 5-827	Columbia University	4146	Pseudo white dwarfs in catoclysmic variables <i>Period</i> 07/15/86-08/14/88 <i>Prin. Invest.</i> Patterson, J. O.	FY88: <i>NASA Tech. Officer</i> GSFC/Kondo, Y.	TOTAL: \$26,065 <i>CASE Category</i> 11-Astronomy
NAG 5-881	Columbia University	4147	The relationship between gravity and topography over Africa <i>Period</i> 02/15/87-12/14/88 <i>Prin. Invest.</i> Watts, A. B.	FY88: <i>NASA Tech. Officer</i> GSFC/Welker, J. E.	TOTAL: \$80,515 <i>CASE Category</i> 32-Geological Sci
NAG 5-920	Columbia University	4148	Role of regional stresses in the development of the Arabian plate <i>Period</i> 06/01/87-11/30/88 <i>Prin. Invest.</i> Cochran, J. R.	FY88: <i>NASA Tech. Officer</i> GSFC/Walker, J. E.	TOTAL: \$94,818 <i>CASE Category</i> 32-Geological Sci
NAG 5-967	Columbia University	4149	Anomalous ultraviolet extinction at the galactic poles <i>Period</i> 08/15/87-08/14/88 <i>Prin. Invest.</i> Martin, C. Basri, G. Finley, D. S.	FY88: <i>NASA Tech. Officer</i> GSFC/Kondo, Y.	TOTAL: \$15,900 <i>CASE Category</i> 11-Astronomy
NAG 5-991	Columbia University	4150	Low redshaft quasar lyman leniut absorption systems <i>Period</i> 08/15/87-08/14/88 <i>Prin. Invest.</i> Tytler, D.	FY88: <i>NASA Tech. Officer</i> GSFC/Kondo, Y.	TOTAL: \$26,000 <i>CASE Category</i> 11-Astronomy
NAG 5-1082	Columbia University	4151	Establishment of a Global Positioning System Geotelic network in the southern Aegean sea <i>Period</i> 09/15/88-09/14/89 <i>Prin. Invest.</i> Kastens, K. A.	FY88: \$41,887 <i>NASA Tech. Officer</i> GSFC/Welker, J. E.	TOTAL: \$41,887 <i>CASE Category</i> 31-Atmos Sci
NAG 8-497	Columbia University	4152	Analysis and interpretation of data from the Einstein Observatory (HEAO-2) <i>Period</i> 10/01/84-09/30/89 <i>Prin. Invest.</i> Novick, R. Helfand, D. J.	FY88: \$258,000 <i>NASA Tech. Officer</i> MSFC/Harper, B. A.	TOTAL: \$1,125,075 <i>CASE Category</i> 11-Astronomy
NAG 8-570	Columbia University	4153	Variable spectra of active galaxies <i>Period</i> 01/01/86-12/30/87 <i>Prin. Invest.</i> Halpern, J. P.	FY88: <i>NASA Tech. Officer</i> MSFC/Dorries, A. M.	TOTAL: \$13,580 <i>CASE Category</i> 11-Astronomy
NAG 8-661	Columbia University	4154	SADAP analysis rapid periodicities in cataclysmic variables <i>Period</i> 08/01/87-07/31/88 <i>Prin. Invest.</i> Patterson, J.	FY88: <i>NASA Tech. Officer</i> MSFC/Harper, B. A.	TOTAL: \$31,000 <i>CASE Category</i> 11-Astronomy
NAG 8-664	Columbia University	4155	A SADAP study of the interstellar medium of the large Magellanic cloud <i>Period</i> 08/01/87-07/31/89 <i>Prin. Invest.</i> Helfand, D. J.	FY88: \$31,200 <i>NASA Tech. Officer</i> MSFC/Harper, B.	TOTAL: \$61,200 <i>CASE Category</i> 11-Astronomy
NAG 8-728	Columbia University	4156	Rapid periodicities in cataclysmic variables <i>Period</i> 06/01/88-05/31/89 <i>Prin. Invest.</i> Patterson, J.	FY88: \$19,350 <i>NASA Tech. Officer</i> MSFC/Harper, B.	TOTAL: \$19,350 <i>CASE Category</i> 11-Astronomy
NAG 8-729	Columbia University	4157	X ray spectra of cataclysmic variables <i>Period</i> 06/01/88-05/31/89 <i>Prin. Invest.</i> Patterson, J.	FY88: \$33,533 <i>NASA Tech. Officer</i> MSFC/Harper, B.	TOTAL: \$33,533 <i>CASE Category</i> 11-Astronomy
NAG 8-740	Columbia University	4158	X ray properties of liners <i>Period</i> 07/01/88-06/30/89 <i>Prin. Invest.</i> Halpern, J.	FY88: \$41,876 <i>NASA Tech. Officer</i> MSFC/Harper, B.	TOTAL: \$41,876 <i>CASE Category</i> 11-Astronomy
NAG 9-256	Columbia University	4159	Accelerated heavy ions and microlesions <i>Period</i> 09/15/87-09/15/89 <i>Prin. Invest.</i> Worgul, D.	FY88: \$105,000 <i>NASA Tech. Officer</i> JSC/Nachtwey, D. S.	TOTAL: \$105,000 <i>CASE Category</i> 56-Medical Sciences
NAGW 567	Columbia University	4160	Problems in neutron star physics <i>Period</i> 03/15/84-02/28/89 <i>Prin. Invest.</i> Shaham, J.	FY88: \$37,722 <i>NASA Tech. Officer</i> HQ-EZ/Kaluzienski, L. J. HQ-EZ/Bunner, A. N.	TOTAL: \$169,607 <i>CASE Category</i> 11-Astronomy
NAGW 667	Columbia University	4161	The effects of wind and water chemistry on gas exchange in the great basin lakes <i>Period</i> 11/01/84-07/31/87 <i>Prin. Invest.</i> Broecker, W. S.	FY88: <i>NASA Tech. Officer</i> HQ-EE/Hampson, R. F. HQ-EE/Margitan, J. J.	TOTAL: \$113,071 <i>CASE Category</i> 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAGW 835	Columbia University	4162	NCA 2-294	Columbia University	4170
13 c, D and 14 C in methane			Turbulence spectrum of a passive temperature field		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/85-03/31/89	FY88: \$50,002	TOTAL: \$128,041	03/01/88-07/31/89	FY88: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fairbanks, R. G.	HQ-EE/Kurylo, M. J.	39-Env Sci, NEC	Prendergast, K.	ARC/Rubessin, M. W.	19-Phys Sci, NEC
	HQ-EE/Watson, R. T.			ARC/Rogallo, R. S.	
NAGW 894	Columbia University	4163	NCA 2-172102	Columbia University	4171
Linear and nonlinear studies of Alfvén waves in space			Biotelemetric analysis of pediatric long-bone reconstruction		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/15/86-01/14/89	FY88: \$175,000	TOTAL: \$411,437	05/15/81-06/30/88	FY88:	TOTAL: \$32,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bhattacharjee, A.	HQ-ES/Mellott, M. M.	13-Physics	Pawluk, R. J.	ARC/Arnaud, S. B.	56-Medical Sciences
Hasegawa, A.	HQ-EE/Eastman, T. E.		Dick, H. M.		
NAGW 895	Columbia University	4164	NCC 2-325	Columbia University	4172
Influence of climate change on deep sea ventilation			Intercellular communication and intracellular metabolic responses by bone cells to simulated weightlessness		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/15/86-10/15/88	FY88: \$50,000	TOTAL: \$268,355	11/01/84-10/31/86	FY88: \$90,000	TOTAL: \$275,443
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Broecker, W. S.	HQ-EE/Kurylo, M. J.	31-Atmos Sci	Doty, S. B.	ARC/Holton, E. M.	51-Biological Sci
Hamelin, B.	HQ-EE/Watson, R. T.				
NAGW 916	Columbia University	4165	NCC 5-28	Columbia University	4173
Modeling studies of the effects of winds and heat flux on the tropical ocean			Molecular astrophysics and high frequency detector development		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-06/30/89	FY88: \$92,592	TOTAL: \$258,843	09/01/83-08/31/86	FY88:	TOTAL: \$670,888
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cane, M. A.	HQ-EE/Richman, J. G.	33-Oceanography	Flynn, S.	GSFC/Green, S.	19-Phys Sci, NEC
	HQ-EE/Wilson, W. S.				
NAGW 1344	Columbia University	4166	NCC 5-29	Columbia University	4174
Antarctic ocean polynyas			Atmospheric, climatic and environmental research		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/88-09/30/89	FY88: \$61,963	TOTAL: \$61,963	10/01/83-11/30/88	FY88: \$374,290	TOTAL: \$2,346,704
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jacobs, S. S.	HQ-EE/Thomas, R. H.	33-Oceanography	Broecker, W. S.	GSFC/Travis, L. D.	31-Atmos Sci
Gordon, A. L.	HQ-EE/Wilson, W. S.		Gornitz, V. M.		
NAGW 1370	Columbia University	4167	NCC 5-32	Columbia University	4175
Development of a high resolution liquid xenon imaging chamber for gamma ray astronomy			Ground hydrology model suitable for global climate modeling		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/88-04/30/89	FY88: \$46,986	TOTAL: \$46,986	07/01/84-05/31/88	FY88: \$7,000	TOTAL: \$103,862
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Aprile, E.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy	Zobler, L.	GSFC/Travis, L.	39-Env Sci, NEC
NAS 5-29172	Columbia University	4168	NCC 5-34	Columbia University	4176
Cooperative visitors program			Modeling of ocean circulation and atmospheric chemical systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/10/85-11/10/86	FY88:	TOTAL: \$140,357	11/15/85-08/31/89	FY88: \$126,000	TOTAL: \$314,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Levenson, R.	GSFC/Travis, L.	19-Phys Sci, NEC	Chu, C. K.	GSFC/Stothers, R.	31-Atmos Sci
NCA 2-133	Columbia University	4169	NCC 5-36	Columbia University	4177
Subgrid turbulence modeling for large eddy simulation			Global habitability studies		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/86-02/29/88	FY88:	TOTAL: \$25,000	01/13/86-01/31/89	FY88: \$375,653	TOTAL: \$691,218
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Helfand, D. J.	ARC/Rubessin, M. W.	19-Phys Sci, NEC	Levenson, R. L.	GSFC/Travis, L.	31-Atmos Sci
	ARC/Rogallo, R. S.				

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NCC 5-37 Columbia University 4178
 Research in astrophysical processes
Period Obligations
 07/01/86-06/30/89 FY88: \$52,989 TOTAL: \$159,744
Prin. Invest. NASA Tech. Officer CASE Category
 Ruderman, M. A. GSFC/Carlson, B. 11-Astronomy

NAG 2-317 Cornell University 4186
 The infrared spectrometer during the SIRTf predefinition phase
Period Obligations
 07/01/84-09/30/87 FY88: TOTAL: \$950,827
Prin. Invest. NASA Tech. Officer CASE Category
 Houck, J. R. ARC/Ramos, R. 11-Astronomy
 ARC/Leidich, C. A.

NCC 5-38 Columbia University 4179
 Theoretical molecular studies of astrophysical interest
Period Obligations
 11/15/86-11/14/87 FY88: TOTAL: \$21,997
Prin. Invest. NASA Tech. Officer CASE Category
 Flynn, G. GSFC/Green, S. 11-Astronomy

NAG 2-373 Cornell University 4187
 Aerodynamics of engine airframe interaction
Period Obligations
 10/01/85-10/31/88 FY88: \$43,626 TOTAL: \$157,679
Prin. Invest. NASA Tech. Officer CASE Category
 Caughey, D. A. ARC/Chyu, W. J. 41-Aero Engr
 ARC/Bencze, D. P.

NGT 00-050-029 Columbia University 4180
 NASA graduate student researchers program
Period Obligations
 06/01/86-06/30/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. HQ-LE/Owens, F. C. 13-Physics

NAG 2-379 Cornell University 4188
 Helicopter tail rotor noise
Period Obligations
 01/01/86-05/14/87 FY88: TOTAL: \$55,215
Prin. Invest. NASA Tech. Officer CASE Category
 George, A. R. ARC/Signor, D. B. 41-Aero Engr
 ARC/Smith, C. A.

NGT 00-050-198 Columbia University 4181
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Martin, C. HQ-XE/Owens, F. C. 13-Physics

NAG 2-524 Cornell University 4189
 A heat pipe mechanism for volcanism and tectonics on Venus
Period Obligations
 05/01/88-04/30/89 FY88: \$31,000 TOTAL: \$31,000
Prin. Invest. NASA Tech. Officer CASE Category
 Turcotte, D. L. ARC/Lasher, L. E. 11-Astronomy
 ARC/Fimmel, R. O.

NGT 00-050-257 Columbia University 4182
 NASA graduate student researchers program
Period Obligations
 01/01/88-12/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Longman, R. HQ-XE/Owens, F. C. 46-Mech Engr

NAG 3-349 Cornell University 4190
 Stall recovery research
Period Obligations
 11/15/82-11/17/88 FY88: \$53,817 TOTAL: \$419,942
Prin. Invest. NASA Tech. Officer CASE Category
 Moore, F. K. LERC/Newman, F. A. 41-Aero Engr

NGT 00-050-315 Columbia University 4183
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Wolgemuth, D. J. HQ-XE/Owens, F. C. 12-Chemistry

NAG 3-645 Cornell University 4191
 Multistage calculation of 3-D turbomachinery flows
Period Obligations
 06/27/85-01/30/89 FY88: \$40,909 TOTAL: \$142,050
Prin. Invest. NASA Tech. Officer CASE Category
 Caughay, D. A. LERC/Chima, R. V. 41-Aero Engr

NSG 7105 Columbia University 4184
 Calculation of collision cross sections of astrophysical interest
Period Obligations
 12/01/74-11/30/88 FY88: \$40,000 TOTAL: \$503,928
Prin. Invest. NASA Tech. Officer CASE Category
 Flynn, G. HQ-EZ/Bogges, N. W. 11-Astronomy
 HQ-EZ/Weiler, E. J.

NAG 3-801 Cornell University 4192
 Influence of hydrodynamics on capillary containment of liquids in a microgravity environment
Period Obligations
 06/01/87-06/19/89 FY88: \$85,275 TOTAL: \$170,506
Prin. Invest. NASA Tech. Officer CASE Category
 Steen, P. H. LERC/Kassem, S. A. 43-Chem Engr

NAG 2-207 Cornell University 4185
 Medium and high resolution infrared spectroscopy from the G.P. Kuiper Airborne Observatory
Period Obligations
 11/01/82-02/28/89 FY88: \$193,807 TOTAL: \$1,016,528
Prin. Invest. NASA Tech. Officer CASE Category
 Herter, T. ARC/Haughney, L. C. 11-Astronomy

NAG 3-803 Cornell University 4193
 Propulsion systems utilizing unsteady flows
Period Obligations
 07/01/87-08/31/88 FY88: TOTAL: \$64,990
Prin. Invest. NASA Tech. Officer CASE Category
 Resler, E. L. LERC/Newman, F. A. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 5-403	Cornell University	4194			
To design parallel algorithms and programming tools for processing on the massively parallel processor					
<i>Period</i>		<i>Obligations</i>			
06/01/84-02/28/87	FY88:	TOTAL: \$97,427			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reeves, A. P.	GSFC/Strong, J. P.	45-Elec Engr			
	GSFC/Ramapriyan, H. K.				
NAG 5-601	Cornell University	4195			
Interferometric phase velocity measurements of plasma waves in the Earth's ionosphere					
<i>Period</i>		<i>Obligations</i>			
02/01/82-02/28/89	FY88: \$227,963	TOTAL: \$874,215			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kintner, P. M.	GSFC/Early, L. J.	13-Physics			
Kelley, M. C.	GSFC/Pless, R. H.				
NAG 5-779	Cornell University	4196			
Vertical crustal motion from satellite geodesy: The terrestrial connection					
<i>Period</i>		<i>Obligations</i>			
05/01/86-03/31/89	FY88: \$58,000	TOTAL: \$155,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, L. D.	GSFC/Frey, H. V.	32-Geological Sci			
Oliver, J. E.					
NAG 5-813	Cornell University	4197			
Participation in the Voyager infrared spectroscopy experiment					
<i>Period</i>		<i>Obligations</i>			
10/15/86-11/14/89	FY88: \$53,005	TOTAL: \$103,005			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rosborough, G. W.	GSFC/Conrath, B. J.	31-Atmos Sci			
NAG 5-860	Cornell University	4198			
Analysis of regional deformation and strain accumulation data adjacent for the San Andreas Fault					
<i>Period</i>		<i>Obligations</i>			
11/01/86-11/30/89	FY88: \$69,673	TOTAL: \$101,059			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Turcotte, D. L.	GSFC/Frey, H. V.	32-Geological Sci			
NAG 5-1090	Cornell University	4199			
Study design layout simulation 2-dimensional transform machine					
<i>Period</i>		<i>Obligations</i>			
10/01/88-03/31/89	FY88: \$15,000	TOTAL: \$15,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Borikoff, V.	GSFC/Florez, J. M.	45-Elec Engr			
	GSFC/Chin, G.				
NAG 8-556	Cornell University	4200			
Investigate the interplay between hot gas and galaxies in the pisces perseus supercluster					
<i>Period</i>		<i>Obligations</i>			
10/01/85-04/01/87	FY88:	TOTAL: \$18,005			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Haynes, M. P.	MSFC/Johnson, W. G.	11-Astronomy			
NAGW 3	Cornell University	4201			
The amyloplast as a gravity sensing device in plants					
<i>Period</i>		<i>Obligations</i>			
10/01/79-03/31/89	FY88: \$25,000	TOTAL: \$411,170			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Leopold, A. C.	HQ-EB/Halstead, T. W.	51-Biological Sci			
NAGW 111	Cornell University	4202			
A study of particle size sorting in Martian wind streaks					
<i>Period</i>		<i>Obligations</i>			
11/01/80-10/31/88	FY88: \$38,000	TOTAL: \$266,397			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Thomas, P. C.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAGW 310	Cornell University	4203			
Studies of planetary rings					
<i>Period</i>		<i>Obligations</i>			
04/01/82-12/31/88	FY88: \$82,000	TOTAL: \$518,331			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Burns, J. A.	HQ-EL/Underwood, J.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAGW 392	Cornell University	4204			
Dynamics of co-orbital satellites and asteroids					
<i>Period</i>		<i>Obligations</i>			
11/01/82-01/31/89	FY88: \$122,000	TOTAL: \$546,388			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dermott, S. F.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAGW 493	Cornell University	4205			
Template reactions and chemical evolution					
<i>Period</i>		<i>Obligations</i>			
07/01/83-09/30/88	FY88: \$67,000	TOTAL: \$291,016			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Usher, D. A.	HQ-EB/Rummel, J.	12-Chemistry			
	HQ-EB/Averner, M.				
NAGW 544	Cornell University	4206			
Dynamical studies of Saturns rings					
<i>Period</i>		<i>Obligations</i>			
03/01/84-12/31/88	FY88: \$33,000	TOTAL: \$144,958			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nicholson, P. D.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAGW 666	Cornell University	4207			
Theoretical physics of accreting, magnetized neutron stars and the resulting X-ray emission					
<i>Period</i>		<i>Obligations</i>			
11/01/84-10/30/88	FY88: \$44,188	TOTAL: \$177,632			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Salpeter, E. E.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy			
	HQ-EZ/Bunner, A.				
NAGW 757	Cornell University	4208			
Electrostatic plasma turbulence in the ionosphere					
<i>Period</i>		<i>Obligations</i>			
10/01/85-09/30/88	FY88: \$50,703	TOTAL: \$131,703			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Seyler, C. E.	HQ-EE/Mellott, M. M.	13-Physics			
	HQ-EE/Parks, G. K.				
NAGW 761	Cornell University	4209			
Mission scientist on the European Space Agency's infrared space observatory					
<i>Period</i>		<i>Obligations</i>			
07/01/85-06/30/88	FY88:	TOTAL: \$102,156			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Harwit, M.	HQ-EZ/Boggess, N. W.	99-Multi-Discip			
	HQ-EZ/Weiler, E. J.				

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAGW 797	Cornell University	4210	Implications of convection within the Moon and the terrestrial planets <i>Period</i> 08/01/85-08/31/87 <i>Prin. Invest.</i> Turcotte, D. L.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Scott, D. H. HQ-EL/Boyce, J. M.	TOTAL: \$48,846 <i>CASE Category</i> 32-Geological Sci
NAGW 1187	Cornell University	4218	The origin and fate of uranian dust <i>Period</i> 09/15/87-09/14/88 <i>Prin. Invest.</i> Burns, J. A.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Quaide, W. L. HQ-EL/Boyce, J. M.	TOTAL: \$18,424 <i>CASE Category</i> 11-Astronomy
NAGW 860	Cornell University	4211	Decision in complex tasks paths <i>Period</i> 02/05/86-01/14/89 <i>Prin. Invest.</i> Galanter, E.	<i>Obligations</i> FY88: \$144,421 NASA Tech. Officer HQ-E/Rosendhal, J. D. HQ-EP/Konkel, R. M.	TOTAL: \$382,744 <i>CASE Category</i> 69-Psych, NEC
NAGW 1199	Cornell University	4219	Resurfacing and tectonism on the satellites of Uranus <i>Period</i> 09/15/87-09/14/88 <i>Prin. Invest.</i> Squyres, S. W. Salpeter, E. E.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Quaide, W. HQ-EL/Underwood, J.	TOTAL: \$30,000 <i>CASE Category</i> 19-Phys Sci, NEC
NAGW 963	Cornell University	4212	Experimental determination of melting behavior of FE and FE alloys at high pressure: Implications for core compositions of terrestrial planets <i>Period</i> 07/15/86-12/14/88 <i>Prin. Invest.</i> Bassett, W. A.	<i>Obligations</i> FY88: \$35,000 NASA Tech. Officer HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	TOTAL: \$95,574 <i>CASE Category</i> 32-Geological Sci
NAGW 1200	Cornell University	4220	Uranian rings dynamics and particle size distribution <i>Period</i> 10/01/87-09/30/88 <i>Prin. Invest.</i> Nicholson, P. D.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Quaide, W. L. HQ-EL/Boyce, J. M.	TOTAL: \$15,000 <i>CASE Category</i> 19-Phys Sci, NEC
NAGW 1006	Cornell University	4213	Physics of solar coronal heating <i>Period</i> 02/01/87-01/31/89 <i>Prin. Invest.</i> Sudan, R. N.	<i>Obligations</i> FY88: \$85,000 NASA Tech. Officer HQ-ES/Ahluwalia, H. S. HQ-EZ/Bohlin, D.	TOTAL: \$170,000 <i>CASE Category</i> 13-Physics
NAGW 1201	Cornell University	4221	Voyager Uranus data analysis shapes of Uranus and its satellites from limb coordinate techniques <i>Period</i> 10/01/87-09/30/88 <i>Prin. Invest.</i> Thomas, P.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Quaide, W. L. HQ-EL/Boyce, J. M.	TOTAL: \$25,000 <i>CASE Category</i> 19-Phys Sci, NEC
NAGW 1023	Cornell University	4214	Geologic studies of Mars and outer planets <i>Period</i> 11/01/86-10/31/88 <i>Prin. Invest.</i> Squyres, S.	<i>Obligations</i> FY88: \$113,000 NASA Tech. Officer HQ-EL/Underwood, J. HQ-EL/Boyce, J. M.	TOTAL: \$210,500 <i>CASE Category</i> 32-Geological Sci
NAGW 1202	Cornell University	4222	Voyager Uranus data analysis program dynamics of the Uranian satellites <i>Period</i> 09/01/87-08/31/88 <i>Prin. Invest.</i> Dermott, S. F.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Quaide, W. L. HQ-EL/Boyce, J. M.	TOTAL: \$41,107 <i>CASE Category</i> 11-Astronomy
NAGW 1083	Cornell University	4215	Influence of volcanism on the tectonics and state of stress on Mars <i>Period</i> 05/01/87-04/30/89 <i>Prin. Invest.</i> Turcotte, D. L.	<i>Obligations</i> FY88: \$14,000 NASA Tech. Officer HQ-EL/Underwood, J. R. HQ-EL/Boyce, J. M.	TOTAL: \$19,000 <i>CASE Category</i> 32-Geological Sci
NAGW 1221	Cornell University	4223	Uranus satellites global photometric maps and photometric terrain classification <i>Period</i> 10/01/87-09/30/89 <i>Prin. Invest.</i> Veverka, J.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EL/Quaide, W. L. HQ-EL/Underwood, J.	TOTAL: \$38,710 <i>CASE Category</i> 32-Geological Sci
NAGW 1087	Cornell University	4216	Remote sensing of biogeochemical cycle <i>Period</i> 05/01/87-04/30/89 <i>Prin. Invest.</i> Mills, E. L. Nealson, K. H. Wrigley, R.	<i>Obligations</i> FY88: \$37,554 NASA Tech. Officer HQ-EE/Wickland, D. E. HQ-EE/Ruzek, M. J.	TOTAL: \$76,194 <i>CASE Category</i> 39-Erv Sci, NEC
NAGW 1262	Cornell University	4224	Kinetics of nuclear and condensation from vapors of metals and metal oxides <i>Period</i> 04/01/88-03/31/89 <i>Prin. Invest.</i> Bauer, S. H.	<i>Obligations</i> FY88: \$50,000 NASA Tech. Officer HQ-EZ/Gillett, F. C.	TOTAL: \$50,000 <i>CASE Category</i> 11-Astronomy
NAGW 1091	Cornell University	4217	Collaborative electronic field research with the People's Republic of China <i>Period</i> 06/01/87-08/31/88 <i>Prin. Invest.</i> Kelley, M. C.	<i>Obligations</i> FY88: NASA Tech. Officer HQ-EE/Fitzenreiter, R. J. HQ-EE/Eastman, T. E.	TOTAL: \$25,000 <i>CASE Category</i> 13-Physics
NAGW 1287	Cornell University	4225	Surface expression of lithosphere dynamics Northern Alaska <i>Period</i> 05/01/88-04/30/89 <i>Prin. Invest.</i> Bird, J. M.	<i>Obligations</i> FY88: \$75,198 NASA Tech. Officer HQ-EE/Baltuck, M. HQ-EE/Ruzek, M. R.	TOTAL: \$75,198 <i>CASE Category</i> 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAGW 1420 **Cornell University** **4226**
Implications of convection within the Moon and the terrestrial planet
Period *Obligations*
01/01/88-12/31/88 FY88: \$14,000 TOTAL: \$14,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turcotte, D. L. HQ-EL/Underwood, J. R. 32-Geological Sci

NASW 3342 **Cornell University** **4234**
Set up a computer system for the spacecraft planetary imaging facility at Cornell
Period *Obligations*
10/01/79-10/31/88 FY88: \$54,255 TOTAL: \$398,304
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-EL/Scott, D. H. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1444 **Cornell University** **4227**
Low-temperature thermodynamics and liquid-vapor equilibria in N2 hydrocarbon systems
Period *Obligations*
07/01/88-06/30/89 FY88: \$50,994 TOTAL: \$50,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thompson, W. R. HQ-EL/Fox, K. 11-Astronomy
HQ-EL/Quaide, W. L.

NCC 3-78 **Cornell University** **4235**
High speed semiconductor lasers and integrated receivers for microwave and millimeter wave signal transmission
Period *Obligations*
01/25/87-01/24/88 FY88: TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Eastman, L. F. LERC/Bhasin, K. B. 45-Elec Engr
Wicks, G. W.

NAGW 1447 **Cornell University** **4228**
The structure of the asteroid belt
Period *Obligations*
09/01/88-08/31/89 FY88: \$18,487 TOTAL: \$18,487
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Darmott, S. F. HQ-EL/Quaide, W. L. 11-Astronomy

NGL 33-010-082 **Cornell University** **4236**
The study of lunar and planetary surfaces and atmospheres
Period *Obligations*
09/23/68-12/31/88 FY88: TOTAL: \$1,162,842
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAS 2-12524 **Cornell University** **4229**
Space infrared telescope facility phase I
Period *Obligations*
02/10/87-10/31/88 FY88: \$300,000 TOTAL: \$1,126,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Houck, J. ARC/Leidich, C. 11-Astronomy

NGL 33-010-186 **Cornell University** **4237**
Studies of thermal structure and motion of planetary atmospheres
Period *Obligations*
04/18/73-06/14/89 FY88: \$61,757 TOTAL: \$897,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gierasch, P. J. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAS 5-23236 **Cornell University** **4230**
Feasibility study for infrared interferometer, spectrometer, and radiometer for Mariner/Jupiter 1977 launch
Period *Obligations*
05/01/73-09/30/86 FY88: TOTAL: \$222,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gierasch, P. J. GSFC/Conrath, B. J. 13-Physics

NGR 33-010-082 **Cornell University** **4238**
Studies of satellite and planetary atmosphere
Period *Obligations*
01/01/88-12/31/88 FY88: \$58,998 TOTAL: \$58,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W.

NAS 5-28739 **Cornell University** **4231**
Thematic mapper study of Alaska ophiolites
Period *Obligations*
07/26/85-11/26/88 FY88: TOTAL: \$215,281
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bird, J. M. GSFC/Oseroff, H. 32-Geological Sci

NGR 33-010-101 **Cornell University** **4239**
An integrated program in exobiology and problems related to origin of life
Period *Obligations*
10/09/69-09/30/88 FY88: \$147,000 TOTAL: \$1,886,445
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. E. HQ-EB/Rummel, J. D. 12-Chemistry
Khare, B. N. HQ-EB/Averner, M.
Thompson, W. R.

NAS 5-28767 **Cornell University** **4232**
Mountain building processes in the central Andes part I
Period *Obligations*
08/14/85-12/13/88 FY88: TOTAL: \$406,989
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bloom, A. L. GSFC/Oseroff, H. 32-Geological Sci
Isacks, B. L. GSFC/Stuart, L. M.

NGR 33-010-220 **Cornell University** **4240**
Interdisciplinary investigations of Mariner 9 data
Period *Obligations*
12/05/73-11/15/88 FY88: \$75,000 TOTAL: \$910,201
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. E. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAS 8-36687 **Cornell University** **4233**
A definition phase of the NASA CRRES mission plan
Period *Obligations*
08/30/85-12/31/89 FY88: \$166,000 TOTAL: \$351,375
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kelley, M. MSFC/Reasoner, D. L. 31-Atmos Sci
MSFC/Richards, L.

NGT 00-050-188 **Cornell University** **4241**
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burns, J. A. HQ-XE/Owens, F. C. 13-Physics

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NGT 00-050-197	Cornell University	4242			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Leopold, A. C.	HQ-XE/Owens, F. C.	55-Agriculture Sci			
NGT 00-050-211	Cornell University	4243			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Bird, J. M.	HQ-XE/Owens, F. C.	19-Phys Sci, NEC			
NGT 00-050-242	Cornell University	4244			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/87-07/31/89	FY88: \$36,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Jordan, T.	HQ-XE/Owens, F. C.	32-Geological Sci			
NGT 00-050-264	Cornell University	4245			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$17,500	TOTAL: \$17,500			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Sievers, A. J.	HQ-XE/Owens, F. C.	13-Physics			
NGT 00-050-280	Cornell University	4246			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/28/88-08/27/89	FY88: \$17,920	TOTAL: \$17,920			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Salpeter, E. E.	HQ-EZ/Nagy, T.	11-Astronomy			
NGT 00-050-294	Cornell University	4247			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Bird, J. M.	HQ-XE/Owens, F. C.	51-Biological Sci			
NGT 00-050-302	Cornell University	4248			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/20/88-08/19/89	FY88: \$17,920	TOTAL: \$17,920			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Sagar, C.	HQ-XE/County, J.	11-Astronomy			
NGT 00-050-327	Cornell University	4249			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Hopcroft, J. E.	HQ-XE/Owens, F. C.	22-Computer Science			
NGT 00-050-335	Cornell University	4250			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Brutsaert, W.	HQ-XE/Owens, F. C.	49-Engr, NEC			
NGT 00-070-008	Cornell University	4251			
Graduate student researchers underrepresented minority focus program					
<i>Period</i>		<i>Obligations</i>			
03/01/87-02/28/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Kintner, P. M.	HQ-LE/Owens, F. C.	45-Elec Engr			
NGT 33-010-801	Cornell University	4252			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/01/85-08/31/87	FY88:	TOTAL: \$36,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Bloom, A. L.	HQ-LE/Owens, F. C.	32-Geological Sci			
Isacks, B. L.					
NGT 33-010-802	Cornell University	4253			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/01/85-05/31/88	FY88:	TOTAL: \$54,000			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Kelley, M. C.	HQ-LE/Owens, F. C.	45-Elec Engr			
NGT 33-010-804	Cornell University	4254			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
08/20/85-08/19/89	FY88: \$32,240	TOTAL: \$67,920			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Nicholson, P. D.	HQ-LE/Owens, F. C.	11-Astronomy			
NGT 33-010-805	Cornell University	4255			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
09/01/85-05/31/87	FY88:	TOTAL: \$32,901			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Burns, J. A.	HQ-LE/Owens, F. C.	11-Astronomy			
NSG 6020	Cornell University	4256			
Rocket investigation of neutral atmosphere ionosphere coupling and planetary electrodynamic					
<i>Period</i>		<i>Obligations</i>			
03/01/78-10/31/88	FY88: \$300,000	TOTAL: \$1,975,117			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Kelley, M. C.	GSFC/Early, L. J.	19-Phys Sci, NEC			
Farley, D. T.	GSFC/Pless, R. H.				
NSG 7156	Cornell University	4257			
Physical studies of planetary surfaces					
<i>Period</i>		<i>Obligations</i>			
07/01/75-09/30/88	FY88: \$75,000	TOTAL: \$644,656			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Veverka, J.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Holt, H.				
NSG 7606	Cornell University	4258			
Effects of photometric geometry on spectral reflectance measurements					
<i>Period</i>		<i>Obligations</i>			
05/01/79-12/31/88	FY88: \$65,000	TOTAL: \$545,495			
<i>Prin. Invest.</i>	NASA Tech. Officer	<i>CASE Category</i>			
Veverka, J.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NCC 2-253 Cornell University - Medical Center 4259
Effectiveness of circadian countermeasures in simulated transmeridian flight schedules
Period *Obligations*
07/01/83-04/30/88 FY88: TOTAL: \$313,365
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moline, M. L. ARC/Graeber, R. C. 56-Medical Sciences
ARC/Billings, C. E.

NAG 1-311 Hofstra University 4260
Estimation of scattering parameters using FM CW radar with limited band width structures
Period *Obligations*
11/24/82-12/31/88 FY88: TOTAL: \$100,415
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weissman, D. E. LARC/Staton, L. D. 45-Elec Engr
LARC/Beck, F. B.

NAGW 468 Hofstra University 4261
Radar measurements of ocean surface waves using the aircraft two frequency scatterometer
Period *Obligations*
05/01/83-09/30/88 FY88: \$50,970 TOTAL: \$311,152
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weissman, D. E. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 735 Hunter College 4262
Center of expertise in spatial modeling and its application to remote sensing
Period *Obligations*
03/01/85-04/30/88 FY88: TOTAL: \$535,389
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strahler, A. H. HQ-EE/Goward, S. N. 39-Env Sci, NEC
HQ-EE/Ruzek, M.

NAGW 953 Hunter College 4263
Extrapolation of process models of evapotranspiration and net primary productivity in coniferous forests to large spatial scales
Period *Obligations*
10/01/86-09/30/87 FY88: TOTAL: \$43,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Band, L. E. HQ-EE/Goward, S. N. 39-Env Sci, NEC
HQ-EE/Wickland, D. E.

NCA 2-143 Hunter College 4264
Automated construction of a spatial framework to integrate remotely sensed data with a distributed process based ecosystem model
Period *Obligations*
07/01/86-12/31/86 FY88: TOTAL: \$15,575
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Band, L. E. ARC/Peterson, D. L. 54-Env Biology

NGT 00-050-149 Hunter College 4265
NASA graduate student researchers program
Period *Obligations*
09/01/87-08/31/88 FY88: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strahler, A. H. HQ-XE/Owens, F. C. 99-Multi-Discip

NAG 3-759 Manhattan College 4266
3 D thermal analysis of spacecraft engines
Period *Obligations*
11/15/86-11/14/87 FY88: TOTAL: \$29,372
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Naraghi, M. H. LERC/Armstrong, E. S. 46-Mech Engr
LERC/Wanhaiwen, J. P.

NAG 3-892 Manhattan College 4267
Thermal analysis of rocket thrust chambers effects of axial conduction and chambers reaction
Period *Obligations*
05/15/88-08/14/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Naraghi, M. H. LERC/Armstrong, E. S. 49-Engr, NEC

NAG 2-336 Mt Sinai Sch of Med of The Cuny 4268
Optokinetic activation of vertical vestibular neurons
Period *Obligations*
12/01/84-01/31/88 FY88: TOTAL: \$149,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cohen, B. ARC/Daunton, N. G. 51-Biological Sci
ARC/Corcoran, M. L.

NGT 33-230-830 New York Institute of Technology 4269
Purpose of conducting early-start engineering careers for minorities and women
Period *Obligations*
07/01/83-09/30/87 FY88: TOTAL: \$195,407
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, T. HQ-U/Pohly, J. G. 29-Math/Computer, NEC

NAG 2-345 New York University 4270
Computational methods for the problem of the tip vortex
Period *Obligations*
04/01/85-08/31/88 FY88: TOTAL: \$145,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garabedian, P. R. ARC/Chang, I. C. 41-Aero Engr

NAG 2-493 New York University 4271
Control primitives for high level manipulation
Period *Obligations*
10/01/87-10/31/88 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Demmel, J. W. ARC/Meyer, G. 49-Engr, NEC

NAG 5-73 New York University 4272
Multifrequency observations of selected extragalactic sources
Period *Obligations*
06/01/80-06/30/88 FY88: TOTAL: \$151,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. GSFC/Kondo, Y. 11-Astronomy
Bregman, J. N.
Huggins, P. J.

NAG 5-341 New York University 4273
Computational methods for general circulation models numerical methods for data assimilation and initialization
Period *Obligations*
07/01/83-03/31/89 FY88: \$88,000 TOTAL: \$580,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Isaacson, E. GSFC/Suarey, M. 31-Atmos Sci
Stoker, J. J.

NAG 5-820 New York University 4274
Data assimilation for general circulation models
Period *Obligations*
07/15/86-02/28/89 FY88: \$108,000 TOTAL: \$220,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cohn, S. GSFC/Pfaendtner, J. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 5-1033	New York University	4275			
Numerical experiments with a stratospheric tropospheric general circulation model					
<i>Period</i> <i>Obligations</i>					
01/01/88-12/31/88	FY88: \$20,132	TOTAL: \$20,132			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Takano, K.	GSFC/Peslen, C. A.	31-Atmos Sci			
NAGW 630	New York University	4276			
Physical properties of molecular clouds					
<i>Period</i> <i>Obligations</i>					
06/01/84-01/31/89	FY88: \$40,000	TOTAL: \$228,499			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Glassgold, A. E.	HQ-EZ/Gillett, F. C.	11-Astronomy			
	HQ-EZ/Weiler, E. J.				
NAGW 781	New York University	4277			
Solar terrestrial physics research					
<i>Period</i> <i>Obligations</i>					
07/01/85-12/31/88	FY88: \$215,000	TOTAL: \$684,871			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Strauss, H.	HQ-EE/Butler, D. M.	11-Astronomy			
	HQ-EE/Curtis, S. A.				
NAGW 850	New York University	4278			
Multi-property modeling in two-dimensions of ocean carbon fluxes					
<i>Period</i> <i>Obligations</i>					
12/01/85-11/30/88	FY88:	TOTAL: \$118,922			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Volk, T.	HQ-EE/Yoder, J. A.	33-Oceanography			
	HQ-EE/Wilson, W. S.				
NCA 2-101	New York University	4279			
The role of reservoir sized for the maintenance of life in closed systems					
<i>Period</i> <i>Obligations</i>					
02/01/86-08/31/88	FY88:	TOTAL: \$26,206			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Volk, T.	ARC/MacElroy, R. D.	59-Life Sci, NEC			
	ARC/Toon, O. B.				
NCC 1-58	New York University	4280			
Analysis of vortex wake structure					
<i>Period</i> <i>Obligations</i>					
11/03/81-10/02/89	FY88:	TOTAL: \$287,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ting, L.	LARC/Liu, C. H.	41-Aero Engr			
NAG 1-888	Polytechnic Institute of New York	4281			
Ultrasonic real-time monitoring of semiconductor growth					
<i>Period</i> <i>Obligations</i>					
06/01/88-05/31/89	FY88: \$76,301	TOTAL: \$76,301			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schleich, D. M.	LARC/Fripp, A. L.	13-Physics			
	LARC/Hoyman, J. S.				
NAG 5-1051	Polytechnic Institute of New York	4282			
Chamber experiments for simulating the artificial plasma layers produced in the upper atmosphere					
<i>Period</i> <i>Obligations</i>					
06/15/88-02/14/89	FY88: \$50,007	TOTAL: \$50,007			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kuo, S. P.	GSFC/Benson, R. F.	13-Physics			
NCC 2-172	Polytechnic Institute of New York	4283			
Geometrical acoustics and transonic helicopter sound					
<i>Period</i> <i>Obligations</i>					
02/01/82-09/30/88	FY88: \$50,383	TOTAL: \$245,295			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Isom, M. P.	ARC/Purcell, T. W.	41-Aero Engr			
	ARC/Schmitz, F. H.				
NGR 33-006-070	Polytechnic Institute of New York	4284			
Synthesis of polypeptides, sugar phosphates and polynucleotides from intermediates under simulated conditions					
<i>Period</i> <i>Obligations</i>					
04/26/73-09/30/88	FY88:	TOTAL: \$672,285			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Eirich, F. R.	HQ-EB/Devincenzi, D. L.	12-Chemistry			
	HQ-EB/Averner, M.				
NGT 00-050-122	Polytechnic Institute of New York	4285			
NASA graduate student researchers program					
<i>Period</i> <i>Obligations</i>					
06/01/87-05/31/88	FY88:	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mijovic, J.	HQ-LE/Owens, F. C.	43-Chem Engr			
NAG 1-253	Rensselaer Polytechnic Institute	4286			
Mechanical properties studies pertaining to enhanced toughness matrices for high performance composites					
<i>Period</i> <i>Obligations</i>					
02/01/82-08/31/88	FY88:	TOTAL: \$387,104			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sternstein, S. S.	LARC/Johnston, N. J.	47-Materials Engr			
	LARC/Hinkley, J. A.				
NAG 1-515	Rensselaer Polytechnic Institute	4287			
Spacecraft controller synthesis for the NASA IEEE design challenge					
<i>Period</i> <i>Obligations</i>					
09/01/84-03/31/89	FY88: \$40,000	TOTAL: \$143,869			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kaufman, H.	LARC/Joshi, S. M.	45-Elec Engr			
Balas, M. J.	LARC/Taylor, L. W.				
NAG 1-752	Rensselaer Polytechnic Institute	4288			
New techniques for estimating optimal sensitivity derivatives					
<i>Period</i> <i>Obligations</i>					
06/01/87-12/15/87	FY88:	TOTAL: \$21,401			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gabriele, G. A.	LARC/Sobieski, J.	41-Aero Engr			
NAG 1-807	Rensselaer Polytechnic Institute	4289			
The vibration characteristics of a metal monocoque helicopter tail cone of moderate size					
<i>Period</i> <i>Obligations</i>					
09/01/87-01/31/89	FY88:	TOTAL: \$45,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bielawa, R.	LARC/Kvaternik, R. G.	41-Aero Engr			
NAG 3-333	Rensselaer Polytechnic Institute	4290			
Influence of melt convection on solid liquid interfaces under terrestrial and reduced gravity environments					
<i>Period</i> <i>Obligations</i>					
10/01/82-12/31/88	FY88: \$286,180	TOTAL: \$1,360,380			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Glicksman, M. E.	LERC/Winsa, E. A.	47-Materials Engr			
	LERC/Kraft, G. A.				

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 3-544 Rensselaer Polytechnic Institute 4291
 Minority engineering program
Period *Obligations*
 04/01/84-04/14/89 FY88: \$70,000 TOTAL: \$350,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burnett, N. LARC/Lawrence, R. F. 49-Engr, NEC

NAG 3-604 Rensselaer Polytechnic Institute 4292
 Diffused junction induction thiosphite solar cells
Period *Obligations*
 02/20/85-11/16/88 FY88: \$100,000 TOTAL: \$315,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ghandhi, S. K. LERC/Weinberg, I. 45-Elec Engr
 Borrego, J. M. LERC/Flood, D.

NAG 3-744 Rensselaer Polytechnic Institute 4293
 Gravitational effects on liquid phase sintering
Period *Obligations*
 10/01/86-09/29/88 FY88: TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 German, R. M. LERC/Santoro, G. J. 47-Materials Engr

NAG 3-810 Rensselaer Polytechnic Institute 4294
 Experimental investigation of unsteady flow closure models
Period *Obligations*
 07/09/87-01/09/89 FY88: \$30,000 TOTAL: \$55,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mayle, R. E. LERC/Adamczyk, J. J. 41-Aero Engr

NAG 3-916 Rensselaer Polytechnic Institute 4295
 Futuristic propulsion systems
Period *Obligations*
 06/20/88-10/05/88 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Myrabo, L. N. LERC/Luidens, R. W. 41-Aero Engr

NAG 5-487 Rensselaer Polytechnic Institute 4296
 Interactive computer graphics
Period *Obligations*
 10/15/84-08/31/89 FY88: TOTAL: \$101,751
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wozny, M. J. GSFC/Truskowski, W. 49-Engr, NEC

NAG 8-28 Rensselaer Polytechnic Institute 4297
 Super advanced propulsion concept study
Period *Obligations*
 09/28/84-09/27/86 FY88: TOTAL: \$84,903
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Myrabo, L. N. MSFC/McCay, T. D. 41-Aero Engr
 MSFC/Aderhold, H.

NAGW 476 Rensselaer Polytechnic Institute 4298
 Investigation of HCN synthesis on Jupiter by photolysis of NH3
Period *Obligations*
 09/01/83-08/31/89 FY88: \$39,400 TOTAL: \$275,685
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ferris, J. P. HQ-EL/Fox, K. 11-Astronomy
 HQ-EL/Quaide, W. L.

NAGW 642 Rensselaer Polytechnic Institute 4299
 Spectral reflectance properties of meteoritic mineral assemblages for the interpretation of asteroid surface materials
Period *Obligations*
 07/01/84-12/31/88 FY88: \$70,000 TOTAL: \$320,680
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gaffey, M. J. HQ-EL/Underwood, J. R. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAGW 1103 Rensselaer Polytechnic Institute 4300
 Radiation transport in dust in disk geometry
Period *Obligations*
 06/01/87-05/31/88 FY88: TOTAL: \$50,835
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Leung, C. HQ-EZ/Weiler, E. J. 11-Astronomy
 HQ-EZ/Stachnik, R. V.

NAGW 1333 Rensselaer Polytechnic Institute 4301
 NASA center for intelligent robotic systems for space exploration
Period *Obligations*
 06/01/88-05/30/89 FY88: \$500,000 TOTAL: \$500,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Saridis, G. N. HQ-RS/Hartman, S. C. 49-Engr, NEC

NAGW 1372 Rensselaer Polytechnic Institute 4302
 Determination of nickel iron metal abundances in MSA type asteroid surfaces materials from IRAS data
Period *Obligations*
 09/01/88-06/31/89 FY88: \$30,329 TOTAL: \$30,329
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gaffey, M. J. HQ-EL/Quaide, W. L. 11-Astronomy

NAS 8-32936 Rensselaer Polytechnic Institute 4303
 Vapor growth of alloy-type semiconductor crystals experiment
Period *Obligations*
 03/20/78-07/31/88 FY88: TOTAL: \$1,070,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wiedemier, H. MSFC/Schaefer, D. A. 47-Materials Engr
 Davidson, M. C. MSFC/Williams, J. R.
 Irene, M.

NCA 2-319 Rensselaer Polytechnic Institute 4304
 Automated finite element modeling techniques
Period *Obligations*
 06/01/88-05/31/90 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shephard, M. ARC/Woo, A. C. 29-Math/Computer, NEC
 Flaherty, J. ARC/Enomoto, F.

NGL 33-018-003 Rensselaer Polytechnic Institute 4305
 Interdisciplinary materials research fundamental physics and chemistry of materials, environmental effects, and related problems
Period *Obligations*
 05/01/84-04/30/88 FY88: TOTAL: \$8,902,826
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Loewy, R. G. HQ/Mulville, D. 41-Aero Engr
 Wiberly, S. E. HQ/Venneri, S. L.
 Scammell, R. E.

NGR 33-018-148 Rensselaer Polytechnic Institute 4306
 Photochemical investigations of the atmosphere of other planets
Period *Obligations*
 08/27/70-10/31/88 FY88: \$108,000 TOTAL: \$1,128,350
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ferris, J. P. HQ-EB/Rummel, J. D. 12-Chemistry
 HQ-EB/Averner, M.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAGW 888 Rochester Institute of Technology 4307
Investigation of southern ocean mesoscale variability from Seasat altimetry
Period *Obligations*
04/01/86-09/30/88 FY88: \$23,719 TOTAL: \$123,880
Prin. Invest. NASA Tech. Officer CASE Category
Sciremammano, F. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAG 5-836 State Univ of New York - Albany 4315
The usefulness of the massively parallel processor to study electronic properties
Period *Obligations*
06/15/88-08/14/87 FY88: TOTAL: \$14,375
Prin. Invest. NASA Tech. Officer CASE Category
Das, T. P. GSFC/Fischer, J. R. 13-Physics
GSFC/Dorband, J. E.

NSG 2380 Rockefeller University 4308
Vestibulocollic reflexes of otolith origin
Period *Obligations*
04/01/79-12/31/87 FY88: TOTAL: \$393,872
Prin. Invest. NASA Tech. Officer CASE Category
Wilson, V. J. ARC/Daunton, N. G. 51-Biological Sci
ARC/Corcoran, M. L.

NAG 8-628 State Univ of New York - Albany 4316
Observations of thunderstorms from U2 airplane
Period *Obligations*
05/04/87-05/03/88 FY88: TOTAL: \$15,900
Prin. Invest. NASA Tech. Officer CASE Category
Vonnegut, B. MSFC/Blakeslee, R. J. 31-Atmos Sci

NAG 1-583 State Univ of New York - Albany 4309
Measurement of heat and moisture fluxes at the top of the rain forest during Amazon boundary layer experiment (ABLE)
Period *Obligations*
04/16/85-12/31/87 FY88: TOTAL: \$46,434
Prin. Invest. NASA Tech. Officer CASE Category
Fitzjarrald, D. R. LARC/Ritter, J. A. 31-Atmos Sci
LARC/Harris, R. C.

NAG 8-737 State Univ of New York - Albany 4317
Positive lightning currents to ground
Period *Obligations*
08/01/88-07/31/89 FY88: \$19,883 TOTAL: \$19,883
Prin. Invest. NASA Tech. Officer CASE Category
Orville, R. E. MSFC/Blakeslee, R. J. 31-Atmos Sci

NAG 1-692 State Univ of New York - Albany 4310
Measurement of the Amazon forest canopy interaction with the atmosphere
Period *Obligations*
07/11/86-07/10/89 FY88: TOTAL: \$90,948
Prin. Invest. NASA Tech. Officer CASE Category
Fitzjarrald, D. R. LARC/Ritter, J. A. 31-Atmos Sci
LARC/Harris, R. C.

NAG 9-78 State Univ of New York - Albany 4318
Chemistries of lunar and terrestrial glasses
Period *Obligations*
02/01/84-02/01/89 FY88: \$34,324 TOTAL: \$160,374
Prin. Invest. NASA Tech. Officer CASE Category
Delano, J. W. JSC/Browne, I. D. 32-Geological Sci
Lindsley, D. H.

NAG 1-847 State Univ of New York - Albany 4311
Observations of surface layer control of arctic trace gas emissions
Period *Obligations*
02/01/88-01/31/89 FY88: \$96,223 TOTAL: \$96,223
Prin. Invest. NASA Tech. Officer CASE Category
Fitzjarrald, D. R. LARC/Ritter, J. A. 31-Atmos Sci
LARC/Harris, R. C.

NAG 9-82 State Univ of New York - Albany 4319
Petrologic investigations of ureilite meteorites
Period *Obligations*
03/01/84-03/01/89 FY88: \$16,151 TOTAL: \$76,230
Prin. Invest. NASA Tech. Officer CASE Category
Berkeley, J. L. JSC/Browne, I. D. 32-Geological Sci

NAG 2-277 State Univ of New York - Albany 4312
Use of radon and cosmogenic radionuclides as indicators of exchange between the troposphere and stratosphere
Period *Obligations*
01/01/84-04/30/89 FY88: TOTAL: \$394,625
Prin. Invest. NASA Tech. Officer CASE Category
Kritz, M. A. ARC/Wilhelmi, A. J. 31-Atmos Sci
ARC/Russell, P. B.

NAG 9-85 State Univ of New York - Albany 4320
The Kolar Schist belt a possible Archean suture zone
Period *Obligations*
03/01/84-06/01/89 FY88: \$28,000 TOTAL: \$134,000
Prin. Invest. NASA Tech. Officer CASE Category
Hanson, G. N. JSC/Phinney, W. C. 32-Geological Sci

NAG 2-495 State Univ of New York - Albany 4313
Search for molecular absorptions with the Fourier transform spectrometer
Period *Obligations*
01/01/88-06/30/89 FY88: \$58,680 TOTAL: \$58,680
Prin. Invest. NASA Tech. Officer CASE Category
Knacke, R. ARC/Haughney, L. C. 11-Astronomy

NAGW 966 State Univ of New York - Albany 4321
Participation in the hypersonic training and research program
Period *Obligations*
06/01/86-05/31/89 FY88: TOTAL: \$415,000
Prin. Invest. NASA Tech. Officer CASE Category
Yu, C. P. HQ-RF/Wander, S. M. 13-Physics
Rae, W. J. HQ-RF/Graves, R. A.
Holden, M. S.

NAG 2-523 State Univ of New York - Albany 4314
The chemistry of the nightside of the ionosphere of Venus
Period *Obligations*
07/01/88-06/30/89 FY88: \$39,953 TOTAL: \$39,953
Prin. Invest. NASA Tech. Officer CASE Category
Fox, J. L. ARC/Lasher, L. E. 11-Astronomy
ARC/Fimmel, R. O.

NAS 1-18155 State Univ of New York - Albany 4322
Science team support for Earth radiation budget experiment (ERBE)
Period *Obligations*
01/10/86-01/10/91 FY88: \$71,000 TOTAL: \$282,000
Prin. Invest. NASA Tech. Officer CASE Category
Cess, R. D. LARC/Cooper, J. L. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 5-30126 State Univ of New York - Albany 4323
 CPMS scientific data interpretation
Period *Obligations*
 10/21/87-10/20/91 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Owen, T. GSFC/Niemann, H. 31-Atmos Sci

NGT 33-183-805 State Univ of New York - Albany 4331
 NASA graduate student researchers program
Period *Obligations*
 06/01/85-05/31/89 FY88: \$18,000 TOTAL: \$72,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rae, W. J. HQ-LE/Owens, F. C. 46-Mech Engr

NAS 8-33380 State Univ of New York - Albany 4324
 Remote observations of severe storms
Period *Obligations*
 04/30/79-08/31/89 FY88: \$88,721 TOTAL: \$818,778
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Orville, R. E. MSFC/Christian, H. J. 31-Atmos Sci
 MSFC/Smith, G. T.

NAG 2-361 State Univ of New York - Binghamton 4332
 Characterization on neurospora circadian rhythms in space
Period *Obligations*
 07/01/85-01/31/87 FY88: TOTAL: \$117,462
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ferraro, J. S. ARC/Winget, C. M. 51-Biological Sci
 Sulzman, F. M.

NAS 9-16604 State Univ of New York - Albany 4325
 Establish microbial control in air/water post-treatment beds
Period *Obligations*
 04/01/82-03/01/89 FY88: TOTAL: \$95,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Janauer, G. E. JSC/Sauer, R. 54-Env Biology

NAG 5-145 State Univ of New York - Binghamton 4333
 Effects of the oceans on polar motion
Period *Obligations*
 03/01/81-08/31/89 FY88: \$49,500 TOTAL: \$319,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dickman, S. R. GSFC/Welker, J. E. 32-Geological Sci

NCA 2-167 State Univ of New York - Albany 4326
 Combined use of radon measurements and objective trajectory analysis
 to recognize long range transport events
Period *Obligations*
 10/01/86-09/30/88 FY88: \$7,655 TOTAL: \$39,655
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kritz, M. A. ARC/Danielsen, E. F. 31-Atmos Sci

NGT 00-050-036 State Univ of New York - Binghamton 4334
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pattee, H. HQ-XE/Owens, F. 79-Soc Sci, NEC

NCC 1-102 State Univ of New York - Albany 4327
 Nucleation properties of Space Shuttle exhaust particles
Period *Obligations*
 03/01/86-08/31/89 FY88: TOTAL: \$24,314
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lala, G. G. LARC/Cofer, W. R., III 31-Atmos Sci

NGT 00-050-226 State Univ of New York - Binghamton 4335
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Janauer, G. E. HQ-XE/Owens, F. C. 12-Chemistry

NCC 2-395 State Univ of New York - Albany 4328
 Development of a high altitude gas sampler and aerosol collector for a
 Titan probe gas chromatograph
Period *Obligations*
 12/15/85-12/14/88 FY88: \$25,350 TOTAL: \$58,895
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Scattergood, T. W. ARC/Carle, G. C. 59-Life Sci, NEC

NGT 33-188-804 State Univ of New York - Binghamton 4336
 NASA graduate student researchers program
Period *Obligations*
 01/01/85-12/31/88 FY88: TOTAL: \$49,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dickman, S. R. HQ-LB/Owens, F. C. 32-Geological Sci

NCC 2-502 State Univ of New York - Albany 4329
 Use of radon and cosmogenic radionuclides as indicators of exchange
 between the troposphere and stratosphere
Period *Obligations*
 10/01/87-12/31/88 FY88: \$73,798 TOTAL: \$73,798
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kritz, M. A. ARC/Wegener, S. 31-Atmos Sci
 ARC/Russell, P. B.

NGT 33-188-805 State Univ of New York - Binghamton 4337
 NASA graduate student researchers program
Period *Obligations*
 06/01/85-05/31/88 FY88: TOTAL: \$52,611
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Goel, N. S. HQ-LE/Owens, F. C. 11-Astronomy

NCC 2-530 State Univ of New York - Albany 4330
 Use of airborne radon measurements to recognize long range transport
 events in the mid and lower troposphere
Period *Obligations*
 02/01/88-09/30/88 FY88: \$37,000 TOTAL: \$37,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kritz, M. A. ARC/Danielsen, E. F. 31-Atmos Sci
 ARC/Wegener, S. S.

NAG 1-249 State Univ of New York - Buffalo 4338
 Debugging tools and multiport nodes for a distributed environment
Period *Obligations*
 01/19/82-01/15/89 FY88: \$10,000 TOTAL: \$454,765
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wittie, L. D. LARC/Murray, N. D. 22-Computer Science
 LARC/Will, R. W.

NAG 1-442 State Univ of New York - Buffalo 4339
 Interaction of space radiation with composite materials
Period *Obligations*
 01/20/84-07/14/87 FY88: TOTAL: \$131,068
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rustgi, M. L. LARC/Long, S. T. 13-Physics

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 5-30126 State Univ of New York - Albany 4323
 CPMS scientific data interpretation
Period *Obligations*
 10/21/87-10/20/91 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
 Owen, T. GSFC/Niemann, H. 31-Atmos Sci

NGT 33-183-805 State Univ of New York - Albany 4331
 NASA graduate student researchers program
Period *Obligations*
 06/01/85-05/31/89 FY88: \$18,000 TOTAL: \$72,000
Prin. Invest. NASA Tech. Officer CASE Category
 Rae, W. J. HQ-LE/Owens, F. C. 46-Mech Engr

NAS 8-33380 State Univ of New York - Albany 4324
 Remote observations of severe storms
Period *Obligations*
 04/30/79-08/31/89 FY88: \$88,721 TOTAL: \$818,778
Prin. Invest. NASA Tech. Officer CASE Category
 Orville, R. E. MSFC/Christian, H. J. 31-Atmos Sci
 MSFC/Smith, G. T.

NAG 2-361 State Univ of New York - Binghamton 4332
 Characterization on neurospora circadian rhythms in space
Period *Obligations*
 07/01/85-01/31/87 FY88: TOTAL: \$117,462
Prin. Invest. NASA Tech. Officer CASE Category
 Ferraro, J. S. ARC/Winget, C. M. 51-Biological Sci
 Sutzman, F. M.

NAS 9-16604 State Univ of New York - Albany 4325
 Establish microbial control in air/water post-treatment beds
Period *Obligations*
 04/01/82-03/01/89 FY88: TOTAL: \$95,500
Prin. Invest. NASA Tech. Officer CASE Category
 Janauer, G. E. JSC/Sauer, R. 54-Env Biology

NAG 5-145 State Univ of New York - Binghamton 4333
 Effects of the oceans on polar motion
Period *Obligations*
 03/01/81-08/31/89 FY88: \$49,500 TOTAL: \$112,300
Prin. Invest. NASA Tech. Officer CASE Category
 Dickman, S. R. GSFC/Welker, J. E. 32-Geological Sci

NCA 2-167 State Univ of New York - Albany 4326
 Combined use of radon measurements and objective trajectory analysis
 to recognize long range transport events
Period *Obligations*
 10/01/86-09/30/88 FY88: \$7,655 TOTAL: \$39,655
Prin. Invest. NASA Tech. Officer CASE Category
 Kritz, M. A. ARC/Danielsen, E. F. 31-Atmos Sci

NGT 00-050-036 State Univ of New York - Binghamton 4334
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
 Pattee, H. HQ-XE/Owens, F. 79-Soc Sci, NEC

NCC 1-102 State Univ of New York - Albany 4327
 Nucleation properties of Space Shuttle exhaust particles
Period *Obligations*
 03/01/86-06/31/89 FY88: TOTAL: \$24,314
Prin. Invest. NASA Tech. Officer CASE Category
 Lala, G. G. LARC/Cofer, W. R., III 31-Atmos Sci

NGT 00-050-226 State Univ of New York - Binghamton 4335
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Janauer, G. E. HQ-XE/Owens, F. C. 12-Chemistry

NCC 2-395 State Univ of New York - Albany 4328
 Development of a high altitude gas sampler and aerosol collector for a
 Titan probe gas chromatograph
Period *Obligations*
 12/15/85-12/14/88 FY88: \$25,350 TOTAL: \$58,895
Prin. Invest. NASA Tech. Officer CASE Category
 Scattergood, T. W. ARC/Carle, G. C. 59-Life Sci, NEC

NGT 33-188-804 State Univ of New York - Binghamton 4336
 NASA graduate student researchers program
Period *Obligations*
 01/01/85-12/31/88 FY88: TOTAL: \$49,500
Prin. Invest. NASA Tech. Officer CASE Category
 Dickman, S. R. HQ-LB/Owens, F. C. 32-Geological Sci

NCC 2-502 State Univ of New York - Albany 4329
 Use of radon and cosmogenic radionuclides as indicators of exchange
 between the troposphere and stratosphere
Period *Obligations*
 10/01/87-12/31/88 FY88: \$73,798 TOTAL: \$73,798
Prin. Invest. NASA Tech. Officer CASE Category
 Kritz, M. A. ARC/Wegener, S. 31-Atmos Sci
 ARC/Russell, P. B.

NGT 33-188-805 State Univ of New York - Binghamton 4337
 NASA graduate student researchers program
Period *Obligations*
 06/01/85-05/31/88 FY88: TOTAL: \$52,611
Prin. Invest. NASA Tech. Officer CASE Category
 Goel, N. S. HQ-LE/Owens, F. C. 11-Astronomy

NCC 2-530 State Univ of New York - Albany 4330
 Use of airborne radon measurements to recognize long range transport
 events in the mid and lower troposphere
Period *Obligations*
 02/01/88-09/30/88 FY88: \$37,000 TOTAL: \$37,000
Prin. Invest. NASA Tech. Officer CASE Category
 Kritz, M. A. ARC/Danielsen, E. F. 31-Atmos Sci
 ARC/Wegener, S. S.

NAG 1-249 State Univ of New York - Buffalo 4338
 Debugging tools and multiprot nodes for a distributed environment
Period *Obligations*
 01/19/82-01/15/89 FY88: \$10,000 TOTAL: \$454,765
Prin. Invest. NASA Tech. Officer CASE Category
 Wittie, L. D. LARC/Murray, N. D. 22-Computer Science
 LARC/Will, R. W.

NAG 1-442 State Univ of New York - Buffalo 4339
 Interaction of space radiation with composite materials
Period *Obligations*
 01/20/84-07/14/87 FY88: TOTAL: \$131,068
Prin. Invest. NASA Tech. Officer CASE Category
 Rustgi, M. L. LARC/Long, S. T. 13-Physics

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 1-577 State Univ of New York - Buffalo 4340
Absorbance, emittance, transmittance and interface effects in
multilayered films
Period *Obligations*
04/05/85-06/04/88 FY88: TOTAL: \$100,378
Prin. Invest. NASA Tech. Officer CASE Category
Rustgi, M. L. LARC/Long, S. T. 13-Physics
LARC/Slemp, W. S.

NAG 1-785 State Univ of New York - Buffalo 4341
Active suspension systems
Period *Obligations*
06/17/87-10/16/88 FY88: \$5,181 TOTAL: \$6,218
Prin. Invest. NASA Tech. Officer CASE Category
Inman, D. J. LARC/Horner, G. C. 41-Aero Engr

NAG 3-862 State Univ of New York - Buffalo 4342
Statistical fracture analysis of composite materials
Period *Obligations*
01/10/88-01/09/89 FY88: \$61,763 TOTAL: \$61,763
Prin. Invest. NASA Tech. Officer CASE Category
Wetherhold, R. C. LERC/Gross, B. 47-Materials Engr

NAG 3-863 State Univ of New York - Buffalo 4343
Synthesis of high performance silicon carbides fibers by chemical vapor
deposition
Period *Obligations*
01/10/88-01/09/89 FY88: \$83,000 TOTAL: \$83,000
Prin. Invest. NASA Tech. Officer CASE Category
Hlavacek, V. LERC/Dicarlo, J. A. 43-Chem Engr
Revankar, V. LERC/Levine, S. R.

NAG 3-897 State Univ of New York - Buffalo 4344
Synthesis of high performance ceramic fibers titanium diboride titanium
carbide boron carbide by chemical vapor deposition for advanced
metallics reinforcing
Period *Obligations*
04/07/88-04/06/89 FY88: \$86,818 TOTAL: \$86,818
Prin. Invest. NASA Tech. Officer CASE Category
Hlavacek, V. LERC/Petrasek, D. W. 43-Chem Engr
Revankar, V.

NAS 9-16042 State Univ of New York - Buffalo 4345
Life science flight experiment: Inflight study of cardiovascular
deconditioning definition phase
Period *Obligations*
01/17/80-12/01/90 FY88: \$82,000 TOTAL: \$1,556,020
Prin. Invest. NASA Tech. Officer CASE Category
Farhi, L. JSC/Lafferty, P. 59-Life Sci, NEC

NGR 33-015-108 State Univ of New York - Buffalo 4346
Planetary curriculum and related geologic research
Period *Obligations*
06/02/70-03/31/89 FY88: \$96,095 TOTAL: \$924,548
Prin. Invest. NASA Tech. Officer CASE Category
King, J. S. HQ-EL/Scott, D. H. 32-Geological Sci
HQ-EL/Underwood, J. R.

NGT 00-050-085 State Univ of New York - Buffalo 4347
NASA graduate student researchers program
Period *Obligations*
06/01/86-05/31/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
Liu, C. S. HQ-LE/Owens, F. C. 46-Mech Engr

NGT 00-050-202 State Univ of New York - Buffalo 4348
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Farhi, L. E. HQ-XE/Owens, F. C. 56-Medical Sciences

NGT 00-070-030 State Univ of New York - Buffalo 4349
Graduate student researchers underrepresented minority focus program
Period *Obligations*
07/01/87-06/30/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Inman, D. J. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 00-070-031 State Univ of New York - Buffalo 4350
Graduate student researchers underrepresented minority focus program
Period *Obligations*
08/24/87-08/23/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Inman, D. J. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 33-183-801 State Univ of New York - Buffalo 4351
NASA graduate student researchers program
Period *Obligations*
05/20/83-05/19/87 FY88: TOTAL: \$63,000
Prin. Invest. NASA Tech. Officer CASE Category
Inman, D. J. HQ-LB/Owens, F. C. 46-Mech Engr

NGT 33-183-802 State Univ of New York - Buffalo 4352
NASA graduate student researchers program
Period *Obligations*
08/30/84-10/12/88 FY88: \$18,000 TOTAL: \$69,000
Prin. Invest. NASA Tech. Officer CASE Category
Inman, D. J. HQ-LB/Owens, F. C. 46-Mech Engr

NAG 2-329 State Univ of New York - Stony Brook 4353
Studies of the aurorally induced ultraviolet emissions on the nightside
of Venus
Period *Obligations*
01/01/85-08/31/88 FY88: TOTAL: \$91,853
Prin. Invest. NASA Tech. Officer CASE Category
Fox, J. L. ARC/Fimmel, R. O. 13-Physics

NAG 3-651 State Univ of New York - Stony Brook 4354
Expert system for organic synthesis discovery
Period *Obligations*
08/10/85-08/17/88 FY88: \$50,755 TOTAL: \$180,638
Prin. Invest. NASA Tech. Officer CASE Category
Gelemter, H. L. LERC/Sutter, J. K. 12-Chemistry
LERC/Serafini, T. T.

NAG 3-751 State Univ of New York - Stony Brook 4355
Crack path deviation in materials with micro defects
Period *Obligations*
11/15/86-11/14/87 FY88: TOTAL: \$12,997
Prin. Invest. NASA Tech. Officer CASE Category
Rubinstein, A. A. LERC/Calomino, A. 49-Engr, NEC

NAG 5-1083 State Univ of New York - Stony Brook 4356
High resolution observations of Uranus and Neptune Jovian auroral
monitoring
Period *Obligations*
09/15/88-09/14/89 FY88: \$23,500 TOTAL: \$23,500
Prin. Invest. NASA Tech. Officer CASE Category
Wagener, R. GSFC/Kondo, Y. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAGW 353 State Univ of New York - Stony Brook 4357
Measurement of concentration and variation in stratospheric chlorine oxide from a portable ground based millimeter wave system
Period *Obligations*
05/15/82-11/30/88 FY88: \$233,677 TOTAL: \$1,167,659
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Soloman, P. M. HQ-EE/Margitan, J. J. 31-Atmos Sci
Dezafra, R. HQ-EB/Watson, R. T.

NAGW 665 State Univ of New York - Stony Brook 4358
Studies of the chemistry of vibrationally and electronically excited species in planetary upper atmospheres
Period *Obligations*
11/01/84-06/30/89 FY88: \$36,285 TOTAL: \$102,681
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fox, J. L. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 725 State Univ of New York - Stony Brook 4359
Laboratory investigations on volatile trapping in comets
Period *Obligations*
03/01/85-11/30/88 FY88: \$60,000 TOTAL: \$195,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owens, T. HQ-EB/Rummel, J. D. 12-Chemistry
Bar-nun, A. HQ-EB/Averner, M.

NAGW 760 State Univ of New York - Stony Brook 4360
Investigation of lunar crustal structure and isostasy
Period *Obligations*
08/01/85-07/31/87 FY88: TOTAL: \$18,544
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thurber, C. H. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAGW 876 State Univ of New York - Stony Brook 4361
Interdisciplinary studies of outer planets atmospheres
Period *Obligations*
02/15/86-08/31/88 FY88: \$40,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Caldwell, J. J. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 1107 State Univ of New York - Stony Brook 4362
Dynamical problems in the solar
Period *Obligations*
06/01/87-01/31/89 FY88: TOTAL: \$29,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lissauer, J. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1238 State Univ of New York - Stony Brook 4363
Laboratory spectroscopic measurements relevant to upper atmospheric research
Period *Obligations*
01/01/88-12/31/88 FY88: \$69,599 TOTAL: \$69,599
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Varanasi, P. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
HQ-EE/Margitan, J. J.

NAG10-35 State Univ of New York - Stony Brook 4364
Chromdome and plant cell division in space
Period *Obligations*
10/01/86-09/01/87 FY88: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krikorian, A. D. KSC/Knott, W. M. 99-Multi-Discip

NAS 8-32904 State Univ of New York - Stony Brook 4365
Scientific investigations in support of the space telescope project
Period *Obligations*
02/01/78-01/31/89 FY88: \$40,000 TOTAL: \$372,669
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Caldwell, J. J. MSFC/Taylor, W. E. 11-Astronomy

NAS10-11395 State Univ of New York - Stony Brook 4366
Chromosomes and plant cell division in space
Period *Obligations*
05/12/87-05/12/89 FY88: \$138,149 TOTAL: \$257,472
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krikorian, A. D. KSC/Knott, W. M. 51-Biological Sci

NCC 2-311 State Univ of New York - Stony Brook 4367
Chemistry of the outer planets
Period *Obligations*
07/01/84-12/14/88 FY88: \$54,356 TOTAL: \$235,570
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scattergood, T. W. ARC/Chang, S. 12-Chemistry
Owen, T.

NGR 33-015-139 State Univ of New York - Stony Brook 4368
Quantitative spectroscopic measurements on the principal constituents in planetary atmospheres
Period *Obligations*
04/12/71-05/31/89 FY88: \$60,387 TOTAL: \$724,151
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Varanasi, P. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NGR 33-015-141 State Univ of New York - Stony Brook 4369
Spectroscopic observations of the planets
Period *Obligations*
01/26/71-01/31/89 FY88: \$103,274 TOTAL: \$728,315
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owen, T. C. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NGT 33-015-803 State Univ of New York - Stony Brook 4370
NASA graduate student researchers program
Period *Obligations*
06/01/85-05/31/88 FY88: TOTAL: \$52,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knacke, R. HQ-LE/Owens, F. C. 11-Astronomy

NGT 33-183-804 State Univ of New York - Stony Brook 4371
NASA graduate student researchers program
Period *Obligations*
07/01/85-06/30/89 FY88: \$18,000 TOTAL: \$72,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Inman, D. J. HQ-LE/Owens, F. C. 41-Aero Engr

NSG 7270 State Univ of New York - Stony Brook 4372
Cells, embryos and development in space
Period *Obligations*
09/01/76-10/30/88 FY88: \$60,000 TOTAL: \$874,065
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krikorian, A. D. HQ-EB/Halstead, T. W. 51-Biological Sci
Steward, F. C.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 7286 State Univ of New York - Stony Brook 4373
Infrared spectroscopy of Jupiter and Saturn
Period Obligations
09/01/76-03/31/89 FY88: \$18,024 TOTAL: \$281,782
Prin. Invest. NASA Tech. Officer CASE Category
Knacke, R. F. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J.

NSG 7553 State Univ of New York - Stony Brook 4374
Outer solar system nomenclature
Period Obligations
04/01/79-12/31/87 FY88: TOTAL: \$59,052
Prin. Invest. NASA Tech. Officer CASE Category
Owens, T. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/French, B. M.

NAG 2-162 St. U. Ny Hsc-Brooklyn 4375
Mechanism and control of disuse atrophy in skeletal muscle
Period Obligations
03/01/82-01/31/88 FY88: TOTAL: \$271,128
Prin. Invest. NASA Tech. Officer CASE Category
Etlinger, J. D. ARC/Grindeland, R. E. 59-Life Sci, NEC
Ellis, S.

NAG 2-531 St. U. Ny Hsc-Brooklyn 4376
Mechanism and control of disuse atrophy in skeletal muscle
Period Obligations
02/01/88-01/31/89 FY88: \$69,540 TOTAL: \$69,540
Prin. Invest. NASA Tech. Officer CASE Category
Etlinger, J. D. ARC/Grindeland, R. E. 56-Medical Sciences
ARC/Arnaud, S. B.

NAG 1-131 State Univ of New York Col - Oneonta 4377
A comparative study of airfoil design methods with emphasis on the application of numerical optimization techniques
Period Obligations
01/01/81-08/31/86 FY88: TOTAL: \$374,938
Prin. Invest. NASA Tech. Officer CASE Category
Ram, R. B. LARC/Harvey, W. D. 41-Aero Engr

NAG 9-257 State Univ of New York Col - Plattsburgh 4378
Connection with trace elemental abundance measurements on cosmic dust particles
Period Obligations
10/01/87-12/01/88 FY88: \$12,892 TOTAL: \$12,892
Prin. Invest. NASA Tech. Officer CASE Category
Flynn, G. J. JSC/Goldstein, S. H. 19-Phys Sci, NEC

NSG 5077 State Univ of New York College - Purchase 4379
Spectral and Monte Carlo predictability studies
Period Obligations
09/01/75-03/31/89 FY88: \$41,103 TOTAL: \$323,595
Prin. Invest. NASA Tech. Officer CASE Category
Tenenbaum, J. GSFC/Helfand, M. 31-Atmos Sci
Reddi, M.

NAG 1-759 Syracuse University 4380
Comprehensive analysis of helicopters with bearingless rotors
Period Obligations
07/01/87-06/30/89 FY88: \$60,548 TOTAL: \$115,507
Prin. Invest. NASA Tech. Officer CASE Category
Murthy, V. R. LARC/Wilbur, M. L. 41-Aero Engr

NAG 1-806 Syracuse University 4381
An experimental and analytical study of ultra high reliable software
Period Obligations
08/01/87-09/30/89 FY88: TOTAL: \$69,647
Prin. Invest. NASA Tech. Officer CASE Category
Goel, A. L. LARC/Sjogren, J. A. 22-Computer Science

NAG 2-306 Syracuse University 4382
Linear and nonlinear dynamic analysis of redundant load path bearingless rotor systems
Period Obligations
07/01/84-09/30/88 FY88: \$56,546 TOTAL: \$192,052
Prin. Invest. NASA Tech. Officer CASE Category
Murthy, V. R. ARC/Peterson, R. 41-Aero Engr
ARC/Warmbrodt, W.

NAG 3-348 Syracuse University 4383
Analysis of fatigue crack growth mechanism and oxidation and fatigue lives at elevated temperatures
Period Obligations
10/30/82-10/27/87 FY88: TOTAL: \$322,965
Prin. Invest. NASA Tech. Officer CASE Category
Liu, H. W. LERC/Telesman, J. 47-Materials Engr
Oshida, Y. LERC/Hirschberg, M. H.

NAG 3-621 Syracuse University 4384
Unsteady transonic heat transfer in a transient facility
Period Obligations
02/28/85-11/27/88 FY88: \$15,000 TOTAL: \$175,026
Prin. Invest. NASA Tech. Officer CASE Category
Legraff, J. E. LERC/O'Brien, J. E. 46-Mech Engr
LERC/Simoneau, R. J.

NAG 3-837 Syracuse University 4385
Mechanism of mode II shear crack growth in a single crystal
Period Obligations
11/10/87-02/19/89 FY88: \$86,170 TOTAL: \$86,170
Prin. Invest. NASA Tech. Officer CASE Category
Liu, H. W. LERC/Telesman, J. 46-Mech Engr

NCA 2-232 Syracuse University 4386
The perception of 3 dimensional motion by man and machine
Period Obligations
06/15/87-11/01/88 FY88: TOTAL: \$10,772
Prin. Invest. NASA Tech. Officer CASE Category
Pelli, D. G. ARC/Watson, A. B. 69-Psych, NEC
ARC/Ahumada, A. J.

NAG 5-938 Union College 4387
The formation and processing of interstellar dust
Period Obligations
07/01/87-04/30/89 FY88: TOTAL: \$6,420
Prin. Invest. NASA Tech. Officer CASE Category
Peak, D. GSFC/Donn, B. D. 13-Physics

NAG 1-910 University of Rochester 4388
Preparation of hermetic seal polymeric coating on KDP and CD A compounds
Period Obligations
09/15/88-01/14/89 FY88: \$26,800 TOTAL: \$26,800
Prin. Invest. NASA Tech. Officer CASE Category
Schmid, A. LARC/Jalink, A. 12-Chemistry
LARC/Miller, B.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 2-117 University of Rochester 4389

Development of an infrared CCD for use in astronomy
Period Obligations
 06/01/81-10/31/88 FY88: \$74,987 TOTAL: \$489,764
Prin. Invest. NASA Tech. Officer CASE Category
 Forrest, W. J. ARC/Goebel, J. H. 11-Astronomy
 Pipher, J. L. ARC/McCreight, C. R.
 Galema, S. D.

NORTH CAROLINA

NAG 1-70 Duke University 4396

Design of the hybrid automated reliability predictor
Period Obligations
 06/01/80-02/15/89 FY88: \$100,000 TOTAL: \$588,174
Prin. Invest. NASA Tech. Officer CASE Category
 Trivedi, K. S. LARC/Bavuso, S. J. 29-Math/Cmputer,NEC
 Geist, R. M. LARC/Pitts, F. L.

NAG 2-539 University of Rochester 4390

Submillimeter spectroscopy with an SIS heterodyne receiver
Period Obligations
 10/01/88-01/31/89 FY88: \$35,100 TOTAL: \$35,100
Prin. Invest. NASA Tech. Officer CASE Category
 Wengler, M. J. ARC/Haughney, L. C. 11-Astronomy

NAG 1-466 Duke University 4397

Parallel algorithms and architectures for computational structural mechanics
Period Obligations
 04/01/84-09/30/88 FY88: TOTAL: \$265,760
Prin. Invest. NASA Tech. Officer CASE Category
 Patrick, M. L. LARC/Storaasli, O. O. 22-Computer Science
 LARC/Bostic, S. W.

NAG 3-414 University of Rochester 4391

Energy transfer using localized plasma resonances
Period Obligations
 03/25/83-09/30/87 FY88: TOTAL: \$265,258
Prin. Invest. NASA Tech. Officer CASE Category
 Hall, D. G. LERC/Arrison, A. 19-Phys Sci, NEC

NAG 1-709 Duke University 4398

Asymptotic modal analysis and statistical energy analysis
Period Obligations
 10/15/86-10/14/88 FY88: \$60,024 TOTAL: \$119,919
Prin. Invest. NASA Tech. Officer CASE Category
 Dowell, E. A. LARC/Shepherd, K. P. 46-Mech Engr
 LARC/Powell, C. A.

NAG 5-934 University of Rochester 4392

Oscillations in sunspots
Period Obligations
 07/01/87-06/30/89 FY88: \$32,000 TOTAL: \$62,000
Prin. Invest. NASA Tech. Officer CASE Category
 Thomas, J. H. GSFC/Bullock, G. D. 19-Phys Sci, NEC
 GSFC/Gurman, J. B.

NAG 1-722 Duke University 4399

Interior noise reduction by alternate resonance tuning
Period Obligations
 01/01/87-12/31/88 FY88: \$59,996 TOTAL: \$110,492
Prin. Invest. NASA Tech. Officer CASE Category
 Bliss, D. B. LARC/Shepherd, K. P. 46-Mech Engr
 LARC/Powell, C. A.

NCC 3-107 University of Rochester 4393

Electrooptic network analyzer
Period Obligations
 01/15/88-01/14/89 FY88: \$70,000 TOTAL: \$70,000
Prin. Invest. NASA Tech. Officer CASE Category
 Dykaar, D. LERC/Bhasin, K. B. 45-Elec Engr
 Jackson, T.
 Mourou, G.

NAG 3-724 Duke University 4400

Unsteady separated flow models for stall flutter analysis in turbomachinery
Period Obligations
 05/01/86-04/28/89 FY88: \$59,913 TOTAL: \$179,721
Prin. Invest. NASA Tech. Officer CASE Category
 Dowell, E. H. LERC/Kaza, K. R. 41-Aero Engr
 Bliss, D. P.

NSG 7562 University of Rochester 4394

Basic research in sunspot dynamics
Period Obligations
 10/01/78-10/30/88 FY88: \$37,000 TOTAL: \$279,924
Prin. Invest. NASA Tech. Officer CASE Category
 Thomas, J. H. HQ-EZ/Ahluwalia, H. S. 13-Physics
 HQ-EZ/Bohlin, J. D.

NAG 5-379 Duke University 4401

Critical transport phenomena in fluid helium under low gravity
Period Obligations
 11/15/83-03/31/89 FY88: \$126,685 TOTAL: \$489,221
Prin. Invest. NASA Tech. Officer CASE Category
 Meyer, H. GSFC/Castles, S. H. 13-Physics
 Behringer, R. P. GSFC/Ryschkewitch, M. G.

NAG 3-842 Utica College 4395

Phase separation kinetics by light scattering in simulated microgravity effect of molecular weight geometry and solvent
Period Obligations
 11/30/87-11/29/88 FY88: \$34,935 TOTAL: \$34,935
Prin. Invest. NASA Tech. Officer CASE Category
 Cerny, L. C. LERC/Sutter, J. K. 12-Chemistry
 LERC/Roberts, G. D.

NAG 9-134 Duke University 4402

Nitrogen elimination and response to decompression: A study of modifying factors
Period Obligations
 03/10/86-03/01/89 FY88: \$88,000 TOTAL: \$266,430
Prin. Invest. NASA Tech. Officer CASE Category
 Vann, R. D. JSC/Horrigan, D. J. 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NAGW 189 Duke University 4403
 Millimeter and submillimeter wave spectroscopic laboratory studies of interstellar molecule
Period Obligations
 06/01/81-04/30/88 FY88: TOTAL: \$370,975
Prin. Invest. NASA Tech. Officer CASE Category
 Herbst, E. HQ-EZ/Boggess, N. W. 11-Astronomy
 HQ-EZ/Weiler, E. J.

NSG 7540 Duke University 4411
 Millimeter and submillimeter spectroscopy of molecules of atmospheric importance
Period Obligations
 03/01/79-02/28/89 FY88: \$96,082 TOTAL: \$715,583
Prin. Invest. NASA Tech. Officer CASE Category
 Delucia, F. C. HQ-EE/Kurylo, M. J. 31-Atmos Sci
 HQ-EE/Margitan, J. J.

NAGW 1259 Duke University 4404
 Millimeter and submillimeter laboratory studies of interstellar molecules
Period Obligations
 02/01/88-01/31/89 FY88: \$48,982 TOTAL: \$48,982
Prin. Invest. NASA Tech. Officer CASE Category
 Herbst, E. HQ-EZ/Gillett, F. C. 11-Astronomy

NAG 2-365 East Carolina University 4412
 Microgravitational effects on chromosome behavior
Period Obligations
 07/01/85-10/31/88 FY88: \$65,000 TOTAL: \$195,937
Prin. Invest. NASA Tech. Officer CASE Category
 Bruschi, C. V. ARC/Winget, C. M. 51-Biological Sci
 ARC/Ballard, R. W.

NAGW 1339 Duke University 4405
 Estimation of aboveground tree biomass in old field loblolly pine forests utilizing multifrequency multipolarization airborne SAR data
Period Obligations
 07/01/88-06/30/89 FY88: \$21,572 TOTAL: \$21,572
Prin. Invest. NASA Tech. Officer CASE Category
 Christensen, N. L. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
 Kasischke, E. S. HQ-EE/Ruzek, M. J.
 Dobson, M. C.

NAG 1-403 North Carolina A&T State University 4413
 Heteroepitaxial growth of III-V semiconductor compounds by metal-organic chemical vapor deposition for device applications
Period Obligations
 10/01/83-08/15/87 FY88: TOTAL: \$213,135
Prin. Invest. NASA Tech. Officer CASE Category
 Abul-fadl, A. LARC/Clark, I. O. 45-Elec Engr
 Collis, W. J. LARC/Magee, C. J.

NGT 00-050-046 Duke University 4406
 NASA graduate student researchers program
Period Obligations
 09/01/86-08/31/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
 De Lucia, F. C. HQ-LE/Owens, F. C. 19-Phys Sci, NEC

NAG 1-404 North Carolina A&T State University 4414
 Effect of fatigue and thermal loads on graphite fiber-reinforced glass matrix composites
Period Obligations
 10/01/83-12/31/87 FY88: TOTAL: \$357,155
Prin. Invest. NASA Tech. Officer CASE Category
 Avva, V. S. LARC/Dicus, D. L. 47-Materials Engr
 Sankar, J.
 Craft, W. J.

NGT 00-050-169 Duke University 4407
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Bliss, D. HQ-XE/Owens, F. C. 46-Mech Engr

NAG 1-405 North Carolina A&T State University 4415
 Dynamics and control of orbiting grid structures and the synchronously deployable beam
Period Obligations
 10/01/83-09/30/88 FY88: TOTAL: \$423,773
Prin. Invest. NASA Tech. Officer CASE Category
 Abu-saba, E. LARC/Montgomery, R. C. 42-Astro Engr
 LARC/Taylor, L. W.

NGT 00-050-342 Duke University 4408
 NASA graduate student researchers program
Period Obligations
 08/23/88-08/22/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Dowell, E. H. HQ-XE/Owens, F. C. 46-Mech Engr

NAG 1-407 North Carolina A&T State University 4416
 Mid infrared laser heterodyne spectroscopy system packaging using flexible waveguides
Period Obligations
 10/01/83-08/15/87 FY88: TOTAL: \$102,200
Prin. Invest. NASA Tech. Officer CASE Category
 Yu, C. LARC/Hoell, J. M. 19-Phys Sci, NEC

NGT 00-050-366 Duke University 4409
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Richardson, D. HQ-XE/Owens, F. C. 12-Chemistry
 Richardson, J. R.

NAG 1-408 North Carolina A&T State University 4417
 Development of computer models for correlating data of film cooling of nose cone under hypersonic flow
Period Obligations
 10/01/83-08/31/87 FY88: TOTAL: \$245,802
Prin. Invest. NASA Tech. Officer CASE Category
 Goswami, D. Y. LARC/Nowak, R. J. 46-Mech Engr
 Min, T. C. LARC/Hunt, L. R.
 Sharpe, L.

NSG 3160 Duke University 4410
 Acceleration of convergence
Period Obligations
 06/01/77-05/29/89 FY88: \$24,198 TOTAL: \$188,035
Prin. Invest. NASA Tech. Officer CASE Category
 Smith, D. A. LERC/Ford, W. F. 21-Mathematics

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NAG 1-414 North Carolina A&T State University 4418
A study of reactive plasma deposited thin films
Period *Obligations*
10/01/83-10/31/87 FY88: TOTAL: \$248,558
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gilchrist, J. LARC/Magee, C. J. 13-Physics
LARC/Clark, I. O.

NCA 2-545201 North Carolina A&T State University 4426
North Carolina A and T student Space Shuttle program/design phase
Period *Obligations*
06/01/82-10/31/88 FY88: \$60,466 TOTAL: \$304,894
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahrens, S. T. ARC/Schmidt, G. K. 51-Biological Sci

NAG 1-763 North Carolina A&T State University 4419
An expert system for planning and scheduling in telerobotic environments
Period *Obligations*
05/18/87-01/31/89 FY88: \$99,649 TOTAL: \$169,031
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ntuen, C. A. LARC/Sliwa, N. E. 22-Computer Science
Park, E. H. LARC/Will, R. W.

NSG 1390 North Carolina A&T State University 4427
Material growth and characterization of III-V compounds for solid state devices
Period *Obligations*
02/01/77-05/31/88 FY88: TOTAL: \$1,400,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stefanakos, E. K. LARC/Magee, C. J. 45-Elec Engr
Collis, W. J. LARC/Clark, I. O.
Abul-fadi, A.

NAG 1-812 North Carolina A&T State University 4420
Gortler vortices by compact schemes
Period *Obligations*
09/01/87-10/31/88 FY88: TOTAL: \$94,298
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klimkowski, J. Z. LARC/Gatski, T. B. 41-Aero Engr
Klett, D. E.

NAG 1-244 North Carolina State Univ. - Raleigh 4428
Numerical solutions of the complete Navier-Stokes equations
Period *Obligations*
01/01/82-02/28/90 FY88: \$66,120 TOTAL: \$511,746
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hassan, H. A. LARC/Harris, J. E. 41-Aero Engr
Dejarnette, F. R. LARC/Rudy, D. H.
Walters, R. W.

NAG 1-815 North Carolina A&T State University 4421
Effect of stimulated Brillouin backscattering on high resolution mir fiber optic laser heterodyne spectroscopic systems
Period *Obligations*
09/01/87-05/15/89 FY88: TOTAL: \$59,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yu, C. LARC/Hoell, J. M. 13-Physics

NAG 1-604 North Carolina State Univ. - Raleigh 4429
Constraint semantics in engineering database use
Period *Obligations*
06/26/85-08/25/87 FY88: TOTAL: \$86,822
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rasdorf, W. J. LARC/Rogers, J. L. 22-Computer Science
LARC/Sobieski, J.

NAG 1-870 North Carolina A&T State University 4422
Two dimensional object identification techniques
Period *Obligations*
04/01/88-03/31/89 FY88: \$124,998 TOTAL: \$124,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lebby, G. LARC/Juang, J. N. 42-Astro Engr
Sherrord, E. E. LARC/Belvin, W. K.

NAG 1-667 North Carolina State Univ. - Raleigh 4430
Experiments in Fault tolerant software reliability
Period *Obligations*
04/07/86-12/31/88 FY88: \$54,977 TOTAL: \$186,970
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McAllister, D. F. LARC/Eckhardt, D. E., Jr. 22-Computer Science
Tai, K. C.
Vouk, M. A.

NAG 1-892 North Carolina A&T State University 4423
Intact recovery of ballistic range test models
Period *Obligations*
07/01/88-06/30/89 FY88: \$75,000 TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sharpe, L. LARC/Witcotski, R. D. 46-Mech Engr
LARC/Scallion, W. I.

NAG 1-696 North Carolina State Univ. - Raleigh 4431
Engineering specification and system design for computer aided design computer aided manufacture CAD CAM of custom shoes
Period *Obligations*
08/15/86-12/31/88 FY88: \$176,102 TOTAL: \$380,102
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McAllister, D. F. LARC/Farmer, F. A. 49-Engr, NEC
Sanni, E. T. LARC/Samos, J.
McAllister, D. F.

NAG 3-739 North Carolina A&T State University 4424
Catalytic decomposition of hydrogen peroxide by transition metal microcyclic amine complexes
Period *Obligations*
08/10/86-11/09/88 FY88: \$52,908 TOTAL: \$105,816
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williamson, A. N. LERC/Mapp, M. W. 12-Chemistry
LERC/Fielder, W. L.

NCA 2-23 North Carolina A&T State University 4425
Application of multi criteria decision making to evaluation of pilot performance at varying levels of proficiency
Period *Obligations*
09/01/85-08/31/87 FY88: TOTAL: \$30,803
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chen, C. S. ARC/Billings, C. E. 69-Psych, NEC

NAG 1-723 North Carolina State Univ. - Raleigh 4432
The crystallization and crystalline properties of polymers
Period *Obligations*
01/01/87-09/30/88 FY88: TOTAL: \$38,546
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Theil, M. H. LARC/Wakelyn, N. T. 47-Materials Engr
LARC/Johnston, N. J.

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NAG 1-738 North Carolina State Univ. - Raleigh 4433
Focal region fields of distorted reflectors
Period *Obligations*
01/06/87-07/05/88 FY88: TOTAL: \$82,147
Prin. Invest. NASA Tech. Officer CASE Category
Kauffman, J. F. LARC/Bailey, M. C. 45-Elec Engr
LARC/Staton, L. D.

NAG 3-855 North Carolina State Univ. - Raleigh 4441
Aerodynamic and acoustic interaction of counter rotating propellers
Period *Obligations*
01/20/88-09/05/89 FY88: \$72,949 TOTAL: \$72,949
Prin. Invest. NASA Tech. Officer CASE Category
Nagel, R. T. LERC/Krejsa, E. A. 41-Aero Engr
LERC/Groeneweg, J. F.

NAG 1-792 North Carolina State Univ. - Raleigh 4434
Continued development of the space transportation model simulation on a microcomputer
Period *Obligations*
07/01/87-12/31/88 FY88: TOTAL: \$10,331
Prin. Invest. NASA Tech. Officer CASE Category
Bengtson, N. M. LARC/Morris, W. D. 22-Computer Science

NAG 5-1042 North Carolina State Univ. - Raleigh 4442
Particle injection and acceleration in parallel and oblique collisionless shocks
Period *Obligations*
03/15/88-03/14/89 FY88: \$29,796 TOTAL: \$29,796
Prin. Invest. NASA Tech. Officer CASE Category
Ellison, D. C. GSFC/Jones, F. C. 13-Physics

NAG 1-883 North Carolina State Univ. - Raleigh 4435
Engineering specifications and system design for CAD/CAM of custom shoes data representation
Period *Obligations*
05/11/88-01/10/89 FY88: \$66,434 TOTAL: \$66,434
Prin. Invest. NASA Tech. Officer CASE Category
Rasdorf, W. J. LARC/Farmer, F. H. 22-Computer Science
LARC/Samos, J.

NAG 8-475 North Carolina State Univ. - Raleigh 4443
The structure of nickel and iron aluminides prepared by rapid solidification and undercooling
Period *Obligations*
08/01/84-01/19/89 FY88: TOTAL: \$271,823
Prin. Invest. NASA Tech. Officer CASE Category
Koch, C. C. MSFC/Ethridge, E. 47-Materials Engr

NAG 2-449 North Carolina State Univ. - Raleigh 4436
Retargeting of existing FORTRAN programs and development of parallel compilers
Period *Obligations*
02/01/87-09/30/88 FY88: TOTAL: \$50,650
Prin. Invest. NASA Tech. Officer CASE Category
Agrawal, D. P. ARC/Stevens, K. G. 22-Computer Science

NAG 8-731 North Carolina State Univ. - Raleigh 4444
Remnant of SN 1006 AD at X ray infrared and radio wavelengths
Period *Obligations*
08/01/88-07/31/89 FY88: \$12,952 TOTAL: \$12,952
Prin. Invest. NASA Tech. Officer CASE Category
Reynolds, S. P. MSFC/Harper, B. A. 11-Astronomy

NAG 3-608 North Carolina State Univ. - Raleigh 4437
Theoretical evaluation of engine auxiliary inlet designs for supersonic V/STOL aircraft
Period *Obligations*
01/25/85-05/31/88 FY88: TOTAL: \$65,942
Prin. Invest. NASA Tech. Officer CASE Category
Boles, M. A. LERC/Johns, A. L. 41-Aero Engr

NAGW 838 North Carolina State Univ. - Raleigh 4445
Seasonal variations of biogenic methane: Biogeochemical controls
Period *Obligations*
10/01/85-12/31/88 FY88: \$118,526 TOTAL: \$373,503
Prin. Invest. NASA Tech. Officer CASE Category
Blair, N. E. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
HQ-EE/Watson, R. T.

NAG 3-611 North Carolina State Univ. - Raleigh 4438
Rotordynamic response of geared systems
Period *Obligations*
02/01/85-08/31/88 FY88: TOTAL: \$100,876
Prin. Invest. NASA Tech. Officer CASE Category
David, J. W. LERC/Fleming, D. P. 46-Mech Engr
LERC/Kascak, A. F.

NAGW 1072 North Carolina State Univ. - Raleigh 4446
Hypersonic aerodynamics
Period *Obligations*
04/15/87-06/30/89 FY88: \$200,000 TOTAL: \$400,000
Prin. Invest. NASA Tech. Officer CASE Category
Dejarnette, F. R. HQ-RF/Wander, S. M. 19-Phys Sci, NEC
HQ-RF/Graves, R. A.

NAG 3-649 North Carolina State Univ. - Raleigh 4439
Cyclic voltammetry in a porous electrode
Period *Obligations*
07/28/85-12/30/89 FY88: TOTAL: \$85,636
Prin. Invest. NASA Tech. Officer CASE Category
Fedkiw, P. S. LERC/Hagedorn, N. 43-Chem Engr
LERC/O'Donnell, P.

NAGW 1331 North Carolina State Univ. - Raleigh 4447
NSCU and NC A and T university space engineering research center
Period *Obligations*
06/01/88-02/28/89 FY88: \$500,000 TOTAL: \$500,000
Prin. Invest. NASA Tech. Officer CASE Category
Dejarnette, F. R. HQ-RS/Hartman, S. C. 49-Engr, NEC

NAG 3-782 North Carolina State Univ. - Raleigh 4440
Silicon carbide semiconductor device fabrication and characterization
Period *Obligations*
02/10/87-02/08/89 FY88: \$50,000 TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
Davis, R. F. LERC/Matus, L. G. 45-Elec Engr
Das, K. K.

NCA 2-247 North Carolina State Univ. - Raleigh 4448
Ecosystem productivity and canopy nutrient content in lowland tropical forests
Period *Obligations*
08/01/87-02/15/89 FY88: TOTAL: \$8,000
Prin. Invest. NASA Tech. Officer CASE Category
Hitchner, L. E. ARC/Peterson, D. L. 54-Env Biology

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NCC 1-22	North Carolina State Univ. - Raleigh	4449	Computational fluid mechanics
<i>Period</i>	<i>Obligations</i>		
06/15/79-09/14/90	FY88: \$106,270	TOTAL: \$1,229,152	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hassan, H. A.	LARC/Salas, M. D.	41-Aero Engr	
Dejarnette, F. R.	LARC/Keller, J. D.		
NCC 1-46	North Carolina State Univ. - Raleigh	4450	Investigation of the aerodynamic characteristics of vortex flows
<i>Period</i>	<i>Obligations</i>		
09/18/80-09/30/88	FY88: \$57,987	TOTAL: \$312,577	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Dejarnette, F. R.	LARC/Schoonover Jr. 4, W. E.	41-Aero Engr	
	LARC/Hall, R. M.		
NCC 1-98	North Carolina State Univ. - Raleigh	4451	Investigation of the effects of surface roughness on the flow over models in cryogenic wind tunnels
<i>Period</i>	<i>Obligations</i>		
05/15/85-12/31/88	FY88: \$49,751	TOTAL: \$122,368	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Dejarnette, F. R.	LARC/Gloss, B. B.	41-Aero Engr	
NCC 1-100	North Carolina State Univ. - Raleigh	4452	Approximate numerical methods for calculating nonequilibrium viscous flow fields and aerodynamic heating over three dimensional bodies
<i>Period</i>	<i>Obligations</i>		
07/15/85-11/30/88	FY88: \$78,891	TOTAL: \$228,824	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Dejarnette, F. R.	LARC/Zoby, E. V.	41-Aero Engr	
NCC 1-103	North Carolina State Univ. - Raleigh	4453	Characterization of the interaction between the nonlinear rigid body motion and the linear elastic motion of maneuvering flexible spacecraft
<i>Period</i>	<i>Obligations</i>		
04/11/86-12/31/87	FY88:	TOTAL: \$23,883	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Silverberg, L. M.	LARC/Rowell, L. F.	42-Astro Engr	
NCC 1-109	North Carolina State Univ. - Raleigh	4454	Hypersonic nozzle design
<i>Period</i>	<i>Obligations</i>		
10/01/86-12/31/88	FY88: \$20,000	TOTAL: \$59,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Perkins, J. N.	LARC/Miller, C. G.	41-Aero Engr	
	LARC/Smith, F. M.		
NCC 1-112	North Carolina State Univ. - Raleigh	4455	The transitional flow regime using the Monte Carlo methods
<i>Period</i>	<i>Obligations</i>		
03/15/87-03/14/89	FY88:	TOTAL: \$175,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hassan, H. A.	LARC/Sutton, K.	41-Aero Engr	
	LARC/Moss, J. N.		
NCC 1-116	North Carolina State Univ. - Raleigh	4456	Decentralized closed loop maneuver
<i>Period</i>	<i>Obligations</i>		
06/01/87-02/15/89	FY88: \$43,683	TOTAL: \$78,091	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Silverberg, L.	LARC/Sparks, D. W.	42-Astro Engr	
	LARC/Montgomery, R. C.		
NCC 1-117	North Carolina State Univ. - Raleigh	4457	An analytical inner layer and finite difference outer region method for solving Navier-Stokes equations
<i>Period</i>	<i>Obligations</i>		
05/15/87-12/31/88	FY88: \$60,216	TOTAL: \$79,412	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Dejarnette, F. R.	LARC/Rudy, D. H.	41-Aero Engr	
	LARC/Barnwell, R. W.		
NCC 1-118	North Carolina State Univ. - Raleigh	4458	The flight qualities of the questair configuration
<i>Period</i>	<i>Obligations</i>		
05/16/87-06/30/88	FY88:	TOTAL: \$15,555	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Perkins, J. N.	LARC/Jordan, F. L.	41-Aero Engr	
Vess, R. J.	LARC/Yip, L. P.		
NCC 1-123	North Carolina State Univ. - Raleigh	4459	Assist in study of integrated propulsion and airframe effects of advanced turboprop aircraft
<i>Period</i>	<i>Obligations</i>		
06/01/88-05/31/89	FY88: \$24,388	TOTAL: \$24,388	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Perkins, J. N.	LARC/Johnson, J. L.	41-Aero Engr	
NCC 2-101	North Carolina State Univ. - Raleigh	4460	Plant growth in controlled environments in response to characteristics of nutrient solutions
<i>Period</i>	<i>Obligations</i>		
01/01/81-02/28/89	FY88: \$72,782	TOTAL: \$466,525	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Raper, C. D., Jr.	ARC/MacElroy, R.	55-Agriculture Sci	
NGT 34-002-801	North Carolina State Univ. - Raleigh	4461	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>		
05/13/85-12/31/87	FY88:	TOTAL: \$35,959	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hassan, H. A.	HQ-LE/Owens, F. C.	41-Aero Engr	
NSG 1562	North Carolina State Univ. - Raleigh	4462	Study of the effects of high energy radiation on the mechanical properties of graphite-fiber reinforced epoxy resins
<i>Period</i>	<i>Obligations</i>		
10/01/78-06/30/87	FY88:	TOTAL: \$421,114	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Goria, R.	LARC/Long, E. R., Jr.	13-Physics	
Hasan, M. M.	LARC/Siemp, W. S.		
Gilbert, R. D.			
NAG 2-181	University of North Carolina - Chapel Hill	4463	Biochemical changes in bone in a model of weightlessness
<i>Period</i>	<i>Obligations</i>		
06/01/82-12/31/88	FY88: \$195,900	TOTAL: \$663,128	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Mechanic, G.	ARC/Arnaud, S. B.	56-Medical Sciences	
NAG 2-391	University of North Carolina - Chapel Hill	4464	Fluid movement in bone its relation to mineral dynamics and hypogravic osteoporosis
<i>Period</i>	<i>Obligations</i>		
05/01/86-02/28/89	FY88: \$40,000	TOTAL: \$168,756	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Dillaman, R. M.	ARC/Arnaud, S. B.	51-Biological Sci	
Roer, R. D.			

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NAGW 593 University of North Carolina - Chapel Hill 4465
Radon-222 tracing of biogenic gas fluxes from methane-saturated environments

<i>Period</i>	<i>Obligations</i>	
04/01/84-06/30/88	FY88: \$430,000	TOTAL: \$430,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martens, C. S.	HQ-EB/Averner, M. M.	39-Env Sci, NEC
	HQ-EB/Devincenzi, D. L.	

NAGW 834 University of North Carolina - Chapel Hill 4466
Seasonal variations in isotopic signatures of methane produced in organic-rich environments

<i>Period</i>	<i>Obligations</i>	
10/01/85-12/31/88	FY88: \$83,650	TOTAL: \$243,701
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martens, C. S.	HQ-EE/Kurylo, M. J.	39-Env Sci, NEC
	HQ-EE/Watson, R. T.	

NAGW 926 University of North Carolina - Chapel Hill 4467
Analysis of spatial moisture soil temperature and plant biomass recognition and evaluation by the NOAA advanced very high resolution radiometer and the LANDSAT multispectral scanner

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/88	FY88: \$100,000	TOTAL: \$200,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walsh, S. J.	HQ-EE/Tuyahov, A. J.	39-Env Sci, NEC
	HQ-EE/Tuyahov, A. J.	

NGT 00-050-337 University of North Carolina - Chapel Hill 4468
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$13,500	TOTAL: \$13,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Christiansen, W.	HQ-XE/Owens, F. C.	13-Physics

NAG 1-535 University of North Carolina, Charlotte 4469
Dynamics and control of flexible spacecraft during slewing maneuvers

<i>Period</i>	<i>Obligations</i>	
11/01/84-10/31/88	FY88: \$40,000	TOTAL: \$139,970
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kakad, Y. P.	LARC/Armstrong, E. S.	45-Elec Engr
	LARC/Taylor, L. W.	

NAG 5-922 University of North Carolina, Charlotte 4470
An auto change mechanism and intelligent gripper for the space station

<i>Period</i>	<i>Obligations</i>	
06/01/87-04/14/89	FY88: \$30,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
De Hoff, P. H.	GSFC/Vranish, J. M.	46-Mech Engr
Mahalingam, S.		
Yadaz, P.		

NAG 5-1053 University of North Carolina, Charlotte 4471
A magnets sensitive skin for robots in space

<i>Period</i>	<i>Obligations</i>	
07/15/88-07/14/89	FY88: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
De Hoff, P. H.	GSFC/Vranish, J. M.	13-Physics
Yadava, P. K.		
Okpokowuruk, P. E.		

NGT 00-050-253 University of North Carolina, Charlotte 4472
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/16/87-09/15/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Daneshvar, K.	HQ-XE/Owens, F. C.	46-Mech Engr

NAG10-45 Wake Forest University 4473
Symbolic inversion based expert systems

<i>Period</i>	<i>Obligations</i>	
06/13/88-08/22/88	FY88: \$29,985	TOTAL: \$29,985
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thomas, S. J.	KSC/Belton, C.	99-Multi-Discip

NAS 2-10523 Wake Forest University 4474
Life science experiment ARC 781-127, correlation macro and microcirculatory alterations during weightlessness

<i>Period</i>	<i>Obligations</i>	
01/17/80-12/31/90	FY88: \$135,000	TOTAL: \$1,187,927
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hutchins, P. M.	ARC/Ferandin, J.	51-Biological Sci
	ARC/Sebesta, P. D.	

NCC 1-55 Wake Forest University 4475
Quantum chemical study of methane oxidation species

<i>Period</i>	<i>Obligations</i>	
06/04/81-06/17/89	FY88: \$26,953	TOTAL: \$164,567
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jackels, C. F.	LARC/Phillips, D. H.	12-Chemistry
	LARC/Rogowski, R. S.	

NGT 00-070-081 Wake Forest University 4476
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
07/01/88-06/30/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hutchins, P.	HQ-XE/Owens, F. C.	51-Biological Sci

NORTH DAKOTA

NAGW 1033 University of North Dakota 4477
Interaction of environment and vegetation composition structure and function on a major tropical ecotone

<i>Period</i>	<i>Obligations</i>	
03/01/87-02/28/89	FY88: \$89,960	TOTAL: \$150,960
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lieberman, D.	HQ-EE/Wickland, D. E.	39-Env Sci, NEC
Lieberman, M.	HQ-EE/Ruzek, M. J.	
Luvall, J. C.		

OHIO

NAG 5-331 Bowling Green State University 4478
Analysis of time variability emission lines in selected galaxies

<i>Period</i>	<i>Obligations</i>	
06/16/83-06/30/87	FY88:	TOTAL: \$33,567
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stoner, R. E.	GSFC/Kondo, Y.	11-Astronomy
Ptak, R.		

NGT 36-002-800 Bowling Green State University 4479
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/15/85-08/25/88	FY88: \$18,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Srinivasan, V.	HQ-LE/Owens, F. C.	12-Chemistry

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 1-856 Case Western Reserve University 4480
Stability of compressible free shear layers
Period *Obligations*
03/01/88-02/28/89 FY88: \$27,000 TOTAL: \$27,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reshotko, E. LARC/Anders, J. B. 41-Aero Engr

NAG 2-339 Case Western Reserve University 4481
Studies of the prenatal and postnatal development and functional differentiation of the vestibular system in normal and centrifuged wistar rats and mice
Period *Obligations*
03/01/85-02/28/87 FY88: TOTAL: \$68,792
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Keefe, J. R. ARC/Souza, K. 51-Biological Sci

NAG 3-2 Case Western Reserve University 4482
Improved and efficient laser anemometers
Period *Obligations*
11/01/79-11/06/88 FY88: \$75,000 TOTAL: \$598,396
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Edwards, R. V. LERC/Lesco, D. 45-Elec Engr

NAG 3-61 Case Western Reserve University 4483
Model development for shock wave boundary layer interaction experiment
Period *Obligations*
04/24/80-10/30/87 FY88: TOTAL: \$182,606
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

NAG 3-230 Case Western Reserve University 4484
Boundary layer transition in a disturbed environment
Period *Obligations*
12/05/81-09/30/88 FY88: \$18,000 TOTAL: \$329,743
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reshotko, E. LERC/O'brien, J. E. 46-Mech Engr
LERC/Simoneau, R. J.

NAG 3-331 Case Western Reserve University 4485
Interactive dual-bearing/shaft finite elements for integrated engine structural analysis
Period *Obligations*
10/25/82-04/14/89 FY88: \$40,450 TOTAL: \$260,664
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, M. L. LERC/Fleming, D. P. 41-Aero Engr
Fertis, D. G. LERC/Steinetz, B. M.

NAG 3-387 Case Western Reserve University 4486
Alloying additions to Ne Ap and FE al for high temperature applications
Period *Obligations*
01/15/83-01/09/89 FY88: \$50,625 TOTAL: \$410,466
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vedula, K. M. LERC/Nathal, M. V. 47-Materials Engr
Hehemann, R. F. LERC/Stephens, J. R.

NAG 3-406 Case Western Reserve University 4487
Case early exposure to engineering for minority students and minority engineer industrial opportunity program
Period *Obligations*
03/25/83-06/14/89 FY88: \$15,989 TOTAL: \$131,989
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Boulding, M. E. LERC/Lawrence, R. F. 49-Engr, NEC

NAG 3-464 Case Western Reserve University 4488
Mechanical behavior of carbon-carbon composites
Period *Obligations*
09/01/83-08/31/87 FY88: TOTAL: \$218,924
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rozak, G. A. LERC/Lowell, C. E. 47-Materials Engr
LERC/Ferrante, J.

NAG 3-467 Case Western Reserve University 4489
Study of combustion liner porous metal thermal barriers
Period *Obligations*
09/01/83-12/31/88 FY88: \$19,690 TOTAL: \$223,425
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dybbis, A. LERC/Acosta, W. A. 46-Mech Engr
LERC/Ercegovic, D.

NAG 3-520 Case Western Reserve University 4490
Experiments in viscous flows in supersonic streams in 1 x 1 Lewis supersonic wind tunnel
Period *Obligations*
01/20/84-11/30/88 FY88: \$20,535 TOTAL: \$125,854
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greber, I. LERC/Hingst, W. R. 41-Aero Engr

NAG 3-553 Case Western Reserve University 4491
Generalized cumulative damage assessment under complex loading patterns and high temperatures
Period *Obligations*
05/15/84-10/31/88 FY88: \$74,899 TOTAL: \$365,433
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Manson, S. S. LERC/Halford, G. R. 47-Materials Engr
LERC/McGaw, M. A.

NAG 3-563 Case Western Reserve University 4492
Mechanical behavior of ordered feal alloys for potential sterling engine application
Period *Obligations*
06/20/84-06/19/87 FY88: TOTAL: \$180,420
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vedula, K. M. LERC/Nathal, M. V. 47-Materials Engr

NAG 3-567 Case Western Reserve University 4493
Thermo/diffuso capillary motion
Period *Obligations*
07/27/84-05/15/89 FY88: \$55,083 TOTAL: \$305,859
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kamotani, Y. LERC/Vernon, R. W. 49-Engr, NEC
Balasubramaniam, R.

NAG 3-570 Case Western Reserve University 4494
Surface-tension driven convection under reduced gravity conditions
Period *Obligations*
08/15/84-01/04/89 FY88: \$177,736 TOTAL: \$622,966
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ostrach, S. LERC/Jacobson, T. P. 49-Engr, NEC
Kamotani, Y.

NAG 3-585 Case Western Reserve University 4495
Fatigue crack and associated damage propagation a fundamental approach
Period *Obligations*
11/05/84-08/03/87 FY88: TOTAL: \$87,683
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chudnovsky, P. A. LERC/Calomino, A. M. 46-Mech Engr
Moet, A. LERC/Gross, B.

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-640	Case Western Reserve University	4496	Receptivity in liquid jets and other flows		
	<i>Period</i>	<i>Obligations</i>			
06/01/85-04/27/88	FY88: \$24,000	TOTAL: \$197,555			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reshotko, E.	LERC/Goldstein, M. E.	13-Physics			
Leib, S. J.					
NAG 3-648	Case Western Reserve University	4497	Lifting surface theory for propelles configurations		
	<i>Period</i>	<i>Obligations</i>			
07/15/85-10/27/88	FY88: \$76,274	TOTAL: \$261,894			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reshotko, E.	LERC/Bober, L. J.	41-Aero Engr			
Ramachandra, S. M.					
NAG 3-653	Case Western Reserve University	4498	Finite element analysis of thermomechanical response for a spray clutch assembly		
	<i>Period</i>	<i>Obligations</i>			
09/01/85-12/31/88	FY88: \$45,115	TOTAL: \$205,299			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mullen, R. L.	LERC/Radil, K. C.	46-Mech Engr			
	LERC/Fleming, D. P.				
NAG 3-686	Case Western Reserve University	4499	Heat flux sensor calibration		
	<i>Period</i>	<i>Obligations</i>			
12/30/85-02/28/89	FY88: \$76,150	TOTAL: \$227,350			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dybs, A.	LERC/Liebert, C. H.	46-Mech Engr			
NAG 3-688	Case Western Reserve University	4500	Molecular orbital studies in oxide metal bonding		
	<i>Period</i>	<i>Obligations</i>			
01/02/86-12/31/88	FY88:	TOTAL: \$88,087			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, A. B.	LERC/Smialek, J. L.	12-Chemistry			
NAG 3-694	Case Western Reserve University	4501	Research in batteries and fuel cells to obtain higher performance and extended cycle life for space application		
	<i>Period</i>	<i>Obligations</i>			
01/25/86-09/30/89	FY88: \$295,000	TOTAL: \$595,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tryk, D. A.	LERC/Hagedorn, N. H.	43-Chem Engr			
Liu, C. C.	LERC/O'donnell, P. M.				
NAG 3-696	Case Western Reserve University	4502	Oxygen interaction with space power material		
	<i>Period</i>	<i>Obligations</i>			
05/01/86-06/14/89	FY88: \$136,655	TOTAL: \$286,485			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ech, T. G.	LERC/Ferguson, D. C.	12-Chemistry			
Hoffman, R. W.	LERC/Purvis, C. K.				
NAG 3-698	Case Western Reserve University	4503	Investigation of electronic structure of defects in gallium arsenide		
	<i>Period</i>	<i>Obligations</i>			
02/05/86-04/02/89	FY88: \$25,000	TOTAL: \$80,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Segall, B.	LERC/Good, B. S.	13-Physics			
NAG 3-700	Case Western Reserve University	4504	Stirling engine flow and heat transfer problems		
	<i>Period</i>	<i>Obligations</i>			
02/10/86-11/14/88	FY88: \$25,800	TOTAL: \$102,230			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dybs, A.	LERC/Tew, R. C.	49-Engr, NEC			
NAG 3-703	Case Western Reserve University	4505	Mixed mode fracture in contact problems		
	<i>Period</i>	<i>Obligations</i>			
02/15/86-01/14/88	FY88:	TOTAL: \$89,204			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mendelson, A.	LERC/Shannon, J. L., Jr.	46-Mech Engr			
NAG 3-707	Case Western Reserve University	4506	Generalized substructuring utilizing mixed modal and physical representations		
	<i>Period</i>	<i>Obligations</i>			
04/01/86-03/29/89	FY88: \$45,600	TOTAL: \$135,859			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Huckelbridge, A.	LERC/Kascak, A. F.	41-Aero Engr			
	LERC/Kiraly, L. J.				
NAG 3-725	Case Western Reserve University	4507	Numerical calculations of 3-D separated flows		
	<i>Period</i>	<i>Obligations</i>			
04/25/86-12/23/88	FY88: \$40,800	TOTAL: \$128,600			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Greber, I.	LERC/Sockol, P. M.	41-Aero Engr			
NAG 3-740	Case Western Reserve University	4508	Foaming in glass melts under microgravity		
	<i>Period</i>	<i>Obligations</i>			
09/01/86-11/30/88	FY88:	TOTAL: \$144,514			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hrma, P.	LERC/Jaskowiak, M. H.	49-Engr, NEC			
NAG 3-758	Case Western Reserve University	4509	Structural and electrical characterization of lattice defects in B SiC		
	<i>Period</i>	<i>Obligations</i>			
11/20/86-11/19/88	FY88: \$83,130	TOTAL: \$137,102			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pirouz, P.	LERC/Powell, J. A.	47-Materials Engr			
NAG 3-761	Case Western Reserve University	4510	Reactionless robots for a micro gravity environment		
	<i>Period</i>	<i>Obligations</i>			
12/01/86-02/28/89	FY88: \$46,415	TOTAL: \$76,926			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Quinn, R. D.	LERC/Lawrence, C.	46-Mech Engr			
NAG 3-766	Case Western Reserve University	4511	Automated image analysis for the isothermal dendritic growth experiment		
	<i>Period</i>	<i>Obligations</i>			
12/10/86-12/09/87	FY88:	TOTAL: \$19,997			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Merat, F. L.	LERC/Winsa, E. A.	22-Computer Science			

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-769 Case Western Reserve University 4512
Controlled matrix and interface structures for improved processibility in ceramic composites
Period *Obligations*
12/20/86-07/25/89 FY88: \$18,500 TOTAL: \$68,467
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ishida, H. LERC/Hurwitz, F. I. 47-Materials Engr

NAG 3-809 Case Western Reserve University 4520
Transient model of a catalytic thruster
Period *Obligations*
07/03/87-03/01/89 FY88: \$44,800 TOTAL: \$74,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
T'ien, J. S. LERC/Williamson, G. S. 41-Aero Engr
Lee, S. T.

NAG 3-779 Case Western Reserve University 4513
Electronic structure of defects and interfaces
Period *Obligations*
02/05/87-06/30/88 FY88: TOTAL: \$5,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Segall, B. LERC/Ferrante, J. 13-Physics

NAG 3-814 Case Western Reserve University 4521
Anisotropy in high TC superconductors
Period *Obligations*
08/01/87-01/31/89 FY88: \$49,788 TOTAL: \$79,757
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Farrell, D. E. LERC/Aron, P. R. 13-Physics
Chandrasekhan, B. S.

NAG 3-785 Case Western Reserve University 4514
Enhanced processing of ceramic composites through colloidal engineering
Period *Obligations*
03/01/87-01/14/89 FY88: \$179,692 TOTAL: \$286,786
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feke, D. L. LERC/Freedman, M. R. 47-Materials Engr

NAG 3-816 Case Western Reserve University 4522
Experimental studies of propagation characteristics in coplanar wave guide and its application in nondestructive evaluation of semiconductors
Period *Obligations*
08/08/87-11/19/88 FY88: \$125,419 TOTAL: \$156,819
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tabib-azar, M. LERC/Leonard, R. F. 45-Elec Engr
Simons, R.

NAG 3-787 Case Western Reserve University 4515
Methods of application of AI expert systems technology
Period *Obligations*
03/05/87-03/04/88 FY88: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sterling, L. LERC/Berke, L. 41-Aero Engr
LERC/Chamis, C. C.

NAG 3-831 Case Western Reserve University 4523
Monodisperse seedey for laser anemometry using condensation technique
Period *Obligations*
11/07/87-11/06/88 FY88: \$49,869 TOTAL: \$49,869
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kadambi, J. R. LERC/Lesco, D. J. 49-Engr, NEC

NAG 3-788 Case Western Reserve University 4516
Intelligent control research
Period *Obligations*
03/07/87-05/31/89 FY88: \$51,450 TOTAL: \$100,462
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Loparo, U. A. LERC/Litt, J. S. 49-Engr, NEC
Lefkowitz, I.

NAG 3-832 Case Western Reserve University 4524
Inversion of the X ray transform from data in a limited angular range
Period *Obligations*
11/07/87-11/06/88 FY88: \$34,999 TOTAL: \$34,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Izen, S. H. LERC/Decker, A. J. 21-Mathematics

NAG 3-795 Case Western Reserve University 4517
Interaction if molecules and particles by analysis of computed trajectories
Period *Obligations*
04/01/87-03/31/89 FY88: \$78,750 TOTAL: \$98,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greber, I. LERC/Ferguson, D. C. 13-Physics
Wachman, H./
Purvis, C. K.

NAG 3-840 Case Western Reserve University 4525
Low Prandtl number convection in floating zone
Period *Obligations*
11/30/87-12/29/88 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ostrach, S. LERC/Gray, H. R. 13-Physics
Kamotani, Y.

NAG 3-797 Case Western Reserve University 4518
Control of reactionless robots
Period *Obligations*
04/15/87-04/14/88 FY88: TOTAL: \$10,061
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Quinn, R. D. LERC/Lawrence, C. 46-Mech Engr

NAG 3-856 Case Western Reserve University 4526
Fracture mechanics of ceramic matrix composites
Period *Obligations*
12/30/87-12/29/88 FY88: \$50,762 TOTAL: \$50,762
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ballarini, R. LERC/Gross, B. 47-Materials Engr

NAG 3-800 Case Western Reserve University 4519
Two level structure for advanced space power system automation
Period *Obligations*
05/30/87-05/28/89 FY88: \$39,170 TOTAL: \$89,194
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Loparo, K. A. LERC/Kish, J. A. 45-Elec Engr
Chankong, V.

NAG 3-878 Case Western Reserve University 4527
Laser enhanced crystal growth in a microgravity environment
Period *Obligations*
02/28/88-09/05/89 FY88: \$180,808 TOTAL: \$180,808
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Claspy, P. C. LERC/Chait, A. 47-Materials Engr
LERC/Johnston, J. C.

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-886 Case Western Reserve University 4528
Gravity dependent transport in industrial processes
Period Obligations
04/15/88-04/14/89 FY88: \$200,000 TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Ostrach, S. LERC/Ratajczak, A. J. 45-Elec Engr
Kamotani, Y.

NAS 9-17439 Case Western Reserve University 4536
Quantitation of effects of gravity upon human vertical vestibular and optokinetic responses
Period Obligations
08/01/85-08/01/88 FY88: TOTAL: \$42,915
Prin. Invest. NASA Tech. Officer CASE Category
Leigh, R. J. JSC/Harris, J. W. 56-Medical Sciences

NAG 3-907 Case Western Reserve University 4529
Space station power system autonomous control
Period Obligations
05/20/88-05/19/89 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
Sterling, L. LERC/Bobinsky, E. A. 22-Computer Science
Vezina, J. M.

NCC 3-25 Case Western Reserve University 4537
Theoretical studies of the transport properties in selectivity doper III V semiconducting heterostructures
Period Obligations
03/07/83-04/18/89 FY88: \$37,700 TOTAL: \$175,190
Prin. Invest. NASA Tech. Officer CASE Category
Segall, B. LERC/Haugland, E. 13-Physics
LERC/Alterovitz, S. A.

NAG 3-922 Case Western Reserve University 4530
Investigate the use of parallel associative memory technology in space station power systems autonomous control
Period Obligations
08/01/88-07/31/89 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Pao, Y. LERC/Dolce, J. L. 45-Elec Engr
Sobajic, D. J. LERC/Sellers, J. F.

NCC 3-29 Case Western Reserve University 4538
Microwave and millimeter wave active and passive circuit modeling design, and testing
Period Obligations
07/01/83-11/29/88 FY88: \$62,445 TOTAL: \$335,829
Prin. Invest. NASA Tech. Officer CASE Category
Collin, R. E. LERC/Ponchak, G. E. 45-Elec Engr

NAG 3-931 Case Western Reserve University 4531
Hypersonic propulsion
Period Obligations
09/21/88-06/20/89 FY88: \$99,200 TOTAL: \$99,200
Prin. Invest. NASA Tech. Officer CASE Category
Resler, E. L. LERC/Newman, F. A. 41-Aero Engr

NCC 3-30 Case Western Reserve University 4539
Transient elastohydrodynamic lubrication in starved conjunctions
Period Obligations
05/15/83-03/03/89 FY88: \$157,500 TOTAL: \$712,140
Prin. Invest. NASA Tech. Officer CASE Category
Prahl, J. M. LERC/Brewe, D. E. 46-Mech Engr
Jeng, J. R. LERC/Loomis, W. R.

NAG 3-932 Case Western Reserve University 4532
Premixed hydrogen-air for scramjet combustion
Period Obligations
10/01/88-09/30/89 FY88: \$9,998 TOTAL: \$9,998
Prin. Invest. NASA Tech. Officer CASE Category
Reshotko, E. LERC/Simoneau, R. J. 46-Mech Engr

NCC 3-40 Case Western Reserve University 4540
Study of electron beam lithography
Period Obligations
09/01/84-12/31/89 FY88: \$5,000 TOTAL: \$100,542
Prin. Invest. NASA Tech. Officer CASE Category
Gordon, W. L. LERC/Bhasin, K. B. 45-Elec Engr
LERC/Leonard, R. F.

NAGW 451 Case Western Reserve University 4533
Gamtrac telescope improved angular resolution for gamma ray astronomy
Period Obligations
04/01/83-03/31/89 FY88: \$200,378 TOTAL: \$962,934
Prin. Invest. NASA Tech. Officer CASE Category
Frye Jr., G. M. HQ-EZ/Kaluzeński, L. J. 11-Astronomy
Jenkins, F. L. HQ-EZ/Bunner, A. N.

NCC 3-42 Case Western Reserve University 4541
Case/NASA cooperation aerospace R and D fellowship program
Period Obligations
06/01/84-12/19/88 FY88: \$1,009,382 TOTAL: \$3,206,159
Prin. Invest. NASA Tech. Officer CASE Category
McKeon, T. J. LERC/Montegani, F. J. 49-Engr, NEC

NAGW 1193 Case Western Reserve University 4534
Center for the commercialization of space
Period Obligations
10/01/87-10/31/88 FY88: \$913,000 TOTAL: \$913,000
Prin. Invest. NASA Tech. Officer CASE Category
Wallace, J. F. HQ-IC/Oran, W. A. 99-Multi-Discip
Baer, E. HQ-IC/Brown, J. A.

NCC 3-43 Case Western Reserve University 4542
Environmental degradation of combustion turbine hot-section materials
Period Obligations
07/15/84-12/17/88 FY88: \$115,883 TOTAL: \$402,421
Prin. Invest. NASA Tech. Officer CASE Category
Vedula, K. LERC/Stearns, C. A. 19-Phys Sci, NEC
Misra, A. K.

NAS 5-29423 Case Western Reserve University 4535
The development of a cerebrospinal fluid (CSF) control system
Period Obligations
02/14/86-07/03/90 FY88: \$469,977 TOTAL: \$1,681,062
Prin. Invest. NASA Tech. Officer CASE Category
Ko, W. H. GSFC/Friedman, D. S. 56-Medical Sciences
Chizeck, H. J.
Meyrick, C. W.

NCC 3-54 Case Western Reserve University 4543
Study of electra-optical link
Period Obligations
11/27/85-06/01/88 FY88: TOTAL: \$42,465
Prin. Invest. NASA Tech. Officer CASE Category
Ferendeci, A. M. LERC/Bhasin, K. B. 45-Elec Engr
Claspy, P. C.

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NCC 3-57	Case Western Reserve University	4544	Integration of detectors with the submillimeter Bachand wave oscillator
<i>Period</i>	<i>Obligations</i>		
01/20/86-01/19/87	FY88:	TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ferendeci, A. M.	LERC/Stankiewicz, N.	45-Elec Engr	
NCC 3-71	Case Western Reserve University	4545	Universal features of the energetics of solids and liquids
<i>Period</i>	<i>Obligations</i>		
10/15/86-09/30/89	FY88: \$44,475	TOTAL: \$60,785	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gordon, W. L.	LERC/Ferrante, J.	13-Physics	
NCC 3-73	Case Western Reserve University	4546	A theoretical and experimental investigation of pyrolytic coatings of materials by chemical vapor disposition
<i>Period</i>	<i>Obligations</i>		
11/20/86-12/17/88	FY88: \$122,010	TOTAL: \$237,931	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Pirouz, P.	LERC/Stearns, C. A.	19-Phys Sci, NEC	
Gokoglu, S.	LERC/Behrendt, D. R.		
NCC 3-74	Case Western Reserve University	4547	Solidification fundamentals
<i>Period</i>	<i>Obligations</i>		
12/01/86-03/31/89	FY88: \$681,655	TOTAL: \$1,106,569	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Laxmanan, V.	LERC/Meador, M. A.	47-Materials Engr	
Wallace, J. F.	LERC/Rosenthal, B. N.		
NCC 3-79	Case Western Reserve University	4548	Integration of detectors with the submillimeter backyard wave oscillator
<i>Period</i>	<i>Obligations</i>		
02/05/87-02/04/88	FY88:	TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ferendeci, A. M.	LERC/Stankiewicz, N.	45-Elec Engr	
NCC 3-80	Case Western Reserve University	4549	Use of supercritical ammonia in ceramic processing
<i>Period</i>	<i>Obligations</i>		
02/28/87-08/30/88	FY88:	TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Adler, R. J.	LERC/Philipp, W. H.	12-Chemistry	
Angus, J. C.			
NCC 3-82	Case Western Reserve University	4550	Synthesis and characterization of ceramics and composites
<i>Period</i>	<i>Obligations</i>		
04/01/87-03/30/89	FY88: \$153,634	TOTAL: \$199,285	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Cooper, A. R.	LERC/Jaskowiak, M. H.	47-Materials Engr	
NCC 3-85	Case Western Reserve University	4551	Absolute ignition delay times for hydrogen oxygen combustion from measurements made new the end wall of a shock tube
<i>Period</i>	<i>Obligations</i>		
06/01/87-11/30/88	FY88:	TOTAL: \$41,625	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Prahl, J. M.	LERC/Brabbs, T. A.	12-Chemistry	
NCC 3-87	Case Western Reserve University	4552	High speed mixing layer with chemical reaction
<i>Period</i>	<i>Obligations</i>		
06/05/87-12/04/88	FY88:	TOTAL: \$46,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tien, J. S.	LERC/Marek, C. J.	46-Mech Engr	
NCC 3-94	Case Western Reserve University	4553	Increased thermal fatigue resistance of copper based alloys through rapid solidification processing
<i>Period</i>	<i>Obligations</i>		
07/30/87-07/28/89	FY88: \$6,000	TOTAL: \$6,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Michal, G. M.	LERC/Gray, H. R.	47-Materials Engr	
Ellis, D. L.			
NCC 3-99	Case Western Reserve University	4554	High frequency wide bandwidth analog optical communication
<i>Period</i>	<i>Obligations</i>		
12/01/87-11/30/88	FY88: \$39,019	TOTAL: \$39,019	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Claspy, P. C.	LERC/Bhasin, K. B.	45-Elec Engr	
	LERC/Leonard, R. F.		
NCC 3-103	Case Western Reserve University	4555	Phase shifting interferometry to measure object displacement
<i>Period</i>	<i>Obligations</i>		
12/05/87-12/04/88	FY88: \$21,922	TOTAL: \$21,922	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Haacke, E. M.	LERC/Decker, A. J.	19-Phys Sci, NEC	
NCC 3-108	Case Western Reserve University	4556	Light scattering techniques for the characterization of colloidal particles
<i>Period</i>	<i>Obligations</i>		
03/05/88-03/04/89	FY88: \$18,000	TOTAL: \$18,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Qutubuddin, S.	LERC/Glasgow, T. K.	47-Materials Engr	
	LERC/Johnston, J. C.		
NCC 3-112	Case Western Reserve University	4557	Synthesis and processing of advanced polymer systems
<i>Period</i>	<i>Obligations</i>		
06/25/88-08/24/89	FY88: \$45,487	TOTAL: \$45,487	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Jukenik, C. N.	LERC/Meador, M. A.	12-Chemistry	
	LERC/Sutter, J. K.		
NCC 3-115	Case Western Reserve University	4558	Maximum likelihood based software for particle sized statistics measured using qels
<i>Period</i>	<i>Obligations</i>		
09/01/88-08/31/89	FY88: \$45,000	TOTAL: \$45,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Edwards, R. V.	LERC/Glasgow, T. K.	47-Materials Engr	
NGT 00-050-087	Case Western Reserve University	4559	NASA graduate student researchers program
<i>Period</i>	<i>Obligations</i>		
08/25/86-08/24/89	FY88: \$36,000	TOTAL: \$72,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Michal, G. M.	HQ-LE/Owens, F. C.	47-Materials Engr	

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NGT 00-050-088 Case Western Reserve University 4560
NASA graduate student researchers program
Period Obligations
06/01/86-05/31/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. NASA Tech. Officer CASE Category
T'ien, J. S. HQ-LE/Owens, F. C. 46-Mech Engr

NGT 00-050-136 Case Western Reserve University 4561
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Sukenik, C. N. HQ-XE/Owens, F. C. 12-Chemistry

NGT 00-050-140 Case Western Reserve University 4562
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Korczak, K. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 00-050-141 Case Western Reserve University 4563
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Qutubuddin, S. HQ-XE/Owens, F. C. 43-Chem Engr

NGT 00-050-375 Case Western Reserve University 4564
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Youngs, W. HQ-XE/Owens, F. C. 12-Chemistry
Youngs, C. T.

NGT 36-027-011 Case Western Reserve University 4565
Summer program of NASA-ASEE summer faculty fellowships
Period Obligations
12/16/69-03/31/89 FY88: \$636,675 TOTAL: \$5,120,690
Prin. Invest. NASA Tech. Officer CASE Category
Praeli, J. M. HQ-XE/McGee, A. S. 49-Engr, NEC
HQ-XE/Schwartz, E. T.

NGT 36-027-803 Case Western Reserve University 4566
NASA graduate student researchers program
Period Obligations
09/01/84-08/31/87 FY88: TOTAL: \$46,000
Prin. Invest. NASA Tech. Officer CASE Category
Adams, M. HQ-LB/Owens, F. C. 46-Mech Engr

NGT 36-027-807 Case Western Reserve University 4567
NASA graduate student researchers program
Period Obligations
09/15/85-09/14/87 FY88: TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Pirouz, P. HQ-LE/Owens, F. C. 47-Materials Engr

NAGW 1336 Central State University - Ohio 4568
Servomotor linked articulated versatile end effect
Period Obligations
06/12/88-06/11/89 FY88: \$125,000 TOTAL: \$125,000
Prin. Invest. NASA Tech. Officer CASE Category
Grisson, W. A. HQ-U/Margolis, M. 46-Mech Engr

NAG 3-138 Cleveland State University 4569
NASA-Cleveland State University internship program
Period Obligations
12/15/80-11/10/88 FY88: \$20,520 TOTAL: \$128,011
Prin. Invest. NASA Tech. Officer CASE Category
Goradia, C. LERC/Weinberg, I. 13-Physics
Goradia, M. G. LERC/Flood, D.

NAG 3-241 Cleveland State University 4570
Effect of heat treatment of electrical contacts to gallium arsenide
Period Obligations
12/15/81-06/29/89 FY88: \$42,294 TOTAL: \$147,315
Prin. Invest. NASA Tech. Officer CASE Category
Goradia, M. G. LERC/Flood, D. J. 45-Elec Engr
LERC/Brinker, D. J.

NAG 3-249 Cleveland State University 4571
Theory of gallium arsenide solar cells with sunlight concentration up to 100X
Period Obligations
01/04/82-02/27/89 FY88: \$42,020 TOTAL: \$215,238
Prin. Invest. NASA Tech. Officer CASE Category
Goradia, C. LERC/Brinker, D. J. 45-Elec Engr

NAG 3-548 Cleveland State University 4572
Unsteady flow and heat transfer in turbomachinery
Period Obligations
04/15/84-01/12/89 FY88: TOTAL: \$211,113
Prin. Invest. NASA Tech. Officer CASE Category
Gorla, R. S. LERC/Sockol, P. M. 41-Aero Engr

NAG 3-550 Cleveland State University 4573
Development and computer implementation of design/analysis techniques for multilayered composite structures
Period Obligations
09/01/84-01/11/89 FY88: \$83,294 TOTAL: \$346,334
Prin. Invest. NASA Tech. Officer CASE Category
Bellini, P. LERC/Chamis, C. C. 41-Aero Engr
Murthy, P. L. LERC/Johns, R. H.

NAG 3-644 Cleveland State University 4574
Artificial intelligence procedures for design analysis of structural systems
Period Obligations
07/01/85-09/30/87 FY88: TOTAL: \$105,000
Prin. Invest. NASA Tech. Officer CASE Category
Bellini, P. X. LERC/Chamis, C. C. 41-Aero Engr

NAG 3-658 Cleveland State University 4575
Theory of indium phosphide solar cells
Period Obligations
10/05/85-10/15/88 FY88: \$110,504 TOTAL: \$265,651
Prin. Invest. NASA Tech. Officer CASE Category
Goradia, C. LERC/Weinberg, I. 45-Elec Engr
Goradia, M. LERC/Flood, D.

NAG 3-662 Cleveland State University 4576
Electrical contract to GaAs solar cells
Period Obligations
11/15/85-12/31/87 FY88: TOTAL: \$39,368
Prin. Invest. NASA Tech. Officer CASE Category
Goradia, M. G. LERC/Brinker, D. J. 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-737 Cleveland State University 4577
Light scattering from a size distribution of aerosol seed in flow visualization
Period *Obligations*
07/22/86-07/21/87 FY88: TOTAL: \$12,871
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lock, J. A. LERC/Chun, K. S. 41-Aero Engr

NAG 8-91 Cleveland State University 4585
Effects of low gravity on microsegregation in directionally solidified superally
Period *Obligations*
06/19/87-06/28/89 FY88: \$40,000 TOTAL: \$79,928
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tewari, S. N. MSFC/Lee, J. E. 47-Materials Engr
MSFC/Spray, C. T.

NAG 3-748 Cleveland State University 4578
Improved boundary layer heat transfer calculations near a stagnation point
Period *Obligations*
10/10/86-01/08/89 FY88: \$7,384 TOTAL: \$23,843
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ibrahim, M. B. LERC/Boyle, R. J. 41-Aero Engr

NCC 3-16 Cleveland State University 4586
Experimental and analytical investigations of characteristics of stand alone solar photovoltaic energy systems and components
Period *Obligations*
10/13/80-09/30/88 FY88: TOTAL: \$580,918
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, G. C. LERC/Fordyce, J. S. 45-Elec Engr
Groumpos, P. P.

NAG 3-749 Cleveland State University 4579
A high temperature testing system for ceramic composites
Period *Obligations*
10/25/86-10/23/88 FY88: \$57,974 TOTAL: \$74,429
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hemann, J. H. LERC/Hurwitz, F. I. 47-Materials Engr

NCC 3-17 Cleveland State University 4587
Computerized mathematical model for optimizing cost and electric output of phosphoric acid fuel cells
Period *Obligations*
03/09/81-01/19/88 FY88: TOTAL: \$317,613
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alkasab, K. A. LERC/Presler, A. F. 46-Mech Engr

NAG 3-780 Cleveland State University 4580
Universality relationships in condensed matter
Period *Obligations*
01/25/87-07/15/87 FY88: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schlosser, H. LERC/Ferrante, J. 13-Physics

NCC 3-19 Cleveland State University 4588
Terrestrial space energetics and power systems
Period *Obligations*
09/01/82-02/28/89 FY88: \$96,946 TOTAL: \$619,423
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hambourger, P. D. LERC/Rutledge, S. K. 43-Chem Engr
Shah, D. B. LERC/Banks, B. A.

NAG 3-873 Cleveland State University 4581
Electrical and magnetic properties of high temperature superconductors
Period *Obligations*
02/15/88-02/14/89 FY88: \$9,812 TOTAL: \$9,812
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hambourgen, P. D. LERC/Aron, P. R. 13-Physics

NCC 3-23 Cleveland State University 4589
Phosphoric-acid fuel cell technology development
Period *Obligations*
11/22/82-12/30/88 FY88: \$160,642 TOTAL: \$926,829
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coulman, G. LERC/Bents, D. J. 43-Chem Engr
Antoine, B. LERC/Smith, J. M.
Alkasab, K.

NAG 3-879 Cleveland State University 4582
Adaptation of reliability analysis program of structural ceramic components scarce to ansys m host and NASTRAN
Period *Obligations*
03/01/88-02/28/89 FY88: \$56,000 TOTAL: \$56,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pintz, A. LERC/Manderscheid, J. M. 46-Mech Engr

NCC 3-24 Cleveland State University 4590
Detection and characterization of flows in ceramic materials
Period *Obligations*
02/15/83-03/30/89 FY88: TOTAL: \$270,668
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hemann, J. H. LERC/Klima, S. J. 47-Materials Engr
Baaklini, G. Y.

NAG 3-889 Cleveland State University 4583
Analyzing a self diagnostic system for piezoelectric sensors
Period *Obligations*
04/01/88-03/31/89 FY88: \$72,408 TOTAL: \$72,408
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Atherton, W. J. LERC/Madzsar, G. C. 49-Engr, NEC
Flanagan, P. M.

NCC 3-27 Cleveland State University 4591
Mechanical behavior of thermal barrier coatings for gas turbine blades
Period *Obligations*
07/01/83-05/15/89 FY88: \$36,767 TOTAL: \$420,954
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, G. C. LERC/Miller, R. A. 47-Materials Engr
Glassman, T. G.

NAG 3-924 Cleveland State University 4584
Thermal properties of pressurized materials
Period *Obligations*
08/15/88-08/14/89 FY88: \$16,477 TOTAL: \$16,477
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kaufman, M. LERC/Ferrante, J. 13-Physics

NCC 3-41 Cleveland State University 4592
Development of experimental capability for microgravity material science
Period *Obligations*
04/25/84-02/23/89 FY88: \$198,150 TOTAL: \$712,954
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kramerich, G. L. LERC/Glasgow, T. K. 29-Math/Computer, NEC
LERC/Rosenthal, B. N.

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NCC 3-46 Cleveland State University 4593
Modelling of high temperature fracture and fatigue processes
Period Obligations
02/28/85-10/30/88 FY88: \$78,752 TOTAL: \$224,734
Prin. Invest. NASA Tech. Officer CASE Category
Ghosn, L. LERC/Calormino, A. M. 47-Materials Engr
LERC/Shannon, J. L.

NCC 3-68 Cleveland State University 4601
Effects of thermal cycling on high temperature polymer composites
Period Obligations
11/15/86-12/13/88 FY88: \$63,280 TOTAL: \$113,095
Prin. Invest. NASA Tech. Officer CASE Category
Hemann, J. H. LERC/Vannucci, R. D. 44-Civil Engr
Cavano, P. J. LERC/Bowles, K. J.

NCC 3-47 Cleveland State University 4594
Implementation of an on-line emission spectroscopy workstation
Period Obligations
03/01/85-12/31/88 FY88: \$7,997 TOTAL: \$33,580
Prin. Invest. NASA Tech. Officer CASE Category
Megargle, R. G. LERC/Crandall, K. S. 12-Chemistry
Wilkes, R. J. LERC/Watson, G. K.

NCC 3-70 Cleveland State University 4602
Two phase flow heat transfer under microgravity conditions
Period Obligations
09/01/86-09/01/87 FY88: TOTAL: \$63,989
Prin. Invest. NASA Tech. Officer CASE Category
Gorla, R. LERC/Vernon, R. W. 46-Mech Engr
Hasan, M. M.

NCC 3-50 Cleveland State University 4595
Engineering analysis of the space station dynamic power system
Period Obligations
05/01/85-12/05/88 FY88: TOTAL: \$201,757
Prin. Invest. NASA Tech. Officer CASE Category
Evans, A. L. LERC/Trudell, J. J. 46-Mech Engr

NCC 3-72 Cleveland State University 4603
Alloy development and mechanical properties of heat storage salts for solar dynamic applications
Period Obligations
10/01/86-11/29/88 FY88: \$83,000 TOTAL: \$157,158
Prin. Invest. NASA Tech. Officer CASE Category
Tewari, S. N. LERC/Wittenberger, J. D. 47-Materials Engr

NCC 3-58 Cleveland State University 4596
Development of a laboratory prototype fiber optic sensing system
Period Obligations
01/30/86-01/27/89 FY88: \$56,388 TOTAL: \$143,845
Prin. Invest. NASA Tech. Officer CASE Category
Anthan, D. J. LERC/Baumbick, R. J. 45-Elec Engr

NCC 3-77 Cleveland State University 4604
Advanced microsheet composite solar reflector for Leo applications
Period Obligations
01/01/87-02/01/89 FY88: \$125,000 TOTAL: \$175,000
Prin. Invest. NASA Tech. Officer CASE Category
Pintz, A. LERC/Savino, J. M. 47-Materials Engr
LERC/Chamis, C. C.

NCC 3-60 Cleveland State University 4597
Microsegregation in directionally solidified binary alloys
Period Obligations
04/01/86-09/15/87 FY88: TOTAL: \$69,564
Prin. Invest. NASA Tech. Officer CASE Category
Hayhurst, D. T. LARC/Gray, H. R. 47-Materials Engr

NCC 3-81 Cleveland State University 4605
Theories of failure for ceramic composite materials and their implementation into finite element codes
Period Obligations
03/05/87-09/30/89 FY88: \$208,699 TOTAL: \$334,259
Prin. Invest. NASA Tech. Officer CASE Category
Hemann, J. H. LERC/Gyekenyesi, J. P. 47-Materials Engr
LERC/Gross, B.

NCC 3-61 Cleveland State University 4598
Experimental capabilities in the microgravity materials science laboratory
Period Obligations
03/31/86-10/09/88 FY88: TOTAL: \$108,185
Prin. Invest. NASA Tech. Officer CASE Category
Kramerich, G. L. LERC/Glasgow, T. K. 47-Materials Engr

NCC 3-86 Cleveland State University 4606
Modeling and analysis of the space station solar cell array electrical characteristics
Period Obligations
06/01/87-10/14/88 FY88: TOTAL: \$60,274
Prin. Invest. NASA Tech. Officer CASE Category
Smith, R. W. LERC/Sater, B. L. 45-Elec Engr
Wayland, K.

NCC 3-63 Cleveland State University 4599
Development of ceramic composites with enhanced reliability
Period Obligations
06/15/86-12/04/88 FY88: \$147,902 TOTAL: \$222,234
Prin. Invest. NASA Tech. Officer CASE Category
Andrist, A. H. LERC/Hurwitz, F. I. 43-Chem Engr

NCC 3-95 Cleveland State University 4607
Cellular dendritic solidification of binary alloys in a positive thermal gradient
Period Obligations
09/15/87-09/13/89 FY88: \$130,000 TOTAL: \$260,000
Prin. Invest. NASA Tech. Officer CASE Category
Tewari, S. N. LERC/Gray, H. R. 47-Materials Engr
Chopra, A. M.

NCC 3-66 Cleveland State University 4600
Electronic heterodyne readout station
Period Obligations
07/20/86-10/18/88 FY88: \$28,012 TOTAL: \$64,764
Prin. Invest. NASA Tech. Officer CASE Category
Anthan, D. J. LERC/Lesco, D. J. 45-Elec Engr
LERC/Decker, A. J.

NCC 3-96 Cleveland State University 4608
Effect of natural convection on solidification behavior of transparent salt single crystals
Period Obligations
11/01/87-10/31/89 FY88: \$48,375 TOTAL: \$48,375
Prin. Invest. NASA Tech. Officer CASE Category
Tewari, S. N. LERC/Glasgow, T. K. 47-Materials Engr

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NCC 3-98 Cleveland State University 4609
Development of wide band optical sensors and high frequency electro optic multiplexers
Period *Obligations*
11/10/87-11/09/88 FY88: \$16,596 TOTAL: \$16,596
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anthan, D. LERC/Bahmbick, R. J. 45-Elec Engr

NCC 3-100 Cleveland State University 4610
Image processing and analysis techniques for utilization in turbulence and combustion research
Period *Obligations*
11/25/87-11/24/88 FY88: \$100,000 TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ghorashi, B. LERC/Marek, C. J. 46-Mech Engr

NCC 3-111 Cleveland State University 4611
Microstructural and microchemical characterization of elevated temperature materials
Period *Obligations*
08/01/88-04/15/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tewari, S. N. LERC/Miner, R. V. 41-Aero Engr
LERC/Hull, D. R.

NGT 00-070-065 Cleveland State University 4612
NASA graduate student researchers program
Period *Obligations*
10/01/87-09/30/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kramerich, G. HQ-XE/Owens, F. C. 21-Mathematics

NGT 00-070-073 Cleveland State University 4613
Graduate student researchers underrepresented minority focus program
Period *Obligations*
03/28/88-03/27/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kramerich, G. L. HQ-XE/Owens, F. C. 21-Mathematics

NGT 00-070-083 Cleveland State University 4614
NASA graduate student researchers program
Period *Obligations*
04/01/88-03/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anthan, D. HQ-XE/Owens, F. C. 22-Computer Science

NAG 3-313 Cuyahoga Community College 4615
Pre-engineering program
Period *Obligations*
09/01/82-08/31/89 FY88: \$27,461 TOTAL: \$144,629
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Candelario, A. R. LERC/Lawrence, R. F. 49-Engr, NEC
Betancourt, A. L.

NAG 3-571 John Carroll University 4616
Optical sensors for use in propulsion systems
Period *Obligations*
10/01/84-02/13/89 FY88: \$52,500 TOTAL: \$181,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fritsch, K. LERC/Baumback, R. J. 45-Elec Engr

NAG 3-756 Kent State University 4617
Performance of energy factors used to pre select atomic and molecular ions
Period *Obligations*
11/15/86-06/15/87 FY88: TOTAL: \$14,577
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aburto, C. V. LERC/Aron, P. R. 13-Physics

NAG 3-838 Kent State University 4618
Secondary ion mass spectrometry
Period *Obligations*
11/11/87-07/30/88 FY88: \$26,352 TOTAL: \$26,352
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aburto, C. V. LERC/Aron, P. R. 13-Physics
LERC/Flood, D. J.

NAGW 368 Kenyon College 4619
Regulation of differential growth in root gravitropism
Period *Obligations*
09/01/82-09/30/88 FY88: \$34,880 TOTAL: \$185,744
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Edwards, K. L. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 3-669 Miami University 4620
Production of separator paper for nickel/hydrogen cells in a pilot paper machine
Period *Obligations*
11/01/85-11/30/87 FY88: TOTAL: \$64,931
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scott, W. E. LERC/Gonzalez-sanabr, O. D. 19-Phys Sci, NEC

NAG 3-847 Miami University 4621
Properties of high TC superconductors through hyperfine interactions
Period *Obligations*
12/01/87-11/30/88 FY88: \$24,095 TOTAL: \$24,095
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Julian, G. M. LERC/Leonard, R. F. 13-Physics
Jha, S.
Dunlap, R. A.

NAS 9-17413 Miami University 4622
Research on mechanisms of space motion sickness
Period *Obligations*
05/01/85-02/01/89 FY88: \$50,000 TOTAL: \$340,456
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, D. E. JSC/Kutyna, F. 51-Biological Sci

NCC 1-113 Miami University 4623
Research on materials of solar laser applications
Period *Obligations*
04/10/87-10/09/88 FY88: TOTAL: \$50,877
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wells, W. LARC/De Young, R. J. 13-Physics
LARC/Conway, E. J.

NGT 00-070-097 Miami University 4624
Graduate student researchers underrepresented minority focus program
Period *Obligations*
08/24/88-08/23/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wells, W. HQ-XE/Owens, F. C. 13-Physics

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAG 3-885	Oberlin College	4625	NAG 3-476	Ohio State University	4633
High temperature superconducting films on insulating substrates			Analysis of electromagnetic scattering		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/15/88-03/14/89	FY88: \$50,000	TOTAL: \$50,000	09/25/83-01/01/89	FY88: \$59,727	TOTAL: \$313,659
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scofield, J. H.	LERC/Alterovitz, S.	13-Physics	Pathak, P. H.	LERC/Rice, E. J.	45-Elec Engr
			Chuang, C.		
NAG 1-641	Ohio State University	4626	NAG 3-536	Ohio State University	4634
An experimental study of the effect of pitch rate on delta wing aerodynamics and stability			Adaptive arrays for satellite communications		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/86-06/30/88	FY88:	TOTAL: \$99,998	03/13/84-10/19/88	FY88: \$104,872	TOTAL: \$388,531
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bragg, M. B.	LARC/Brandon, J. M.	41-Aero Engr	Gupta, I. J.	LERC/Arth, C. H.	45-Elec Engr
Gregorek, G. M.	LARC/Harvey, W. D.		Walton, E. K.	LERC/Miller, E. F.	
Hoffman, M.					
NAG 1-720	Ohio State University	4627	NAG 3-706	Ohio State University	4635
Decentralized control and identification experiments for the NASA LaRC Scale program			Experimental study of shock-boundary layer interactions in hypersonic flow		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/87-12/31/88	FY88: \$62,245	TOTAL: \$102,245	03/01/86-12/04/88	FY88: \$113,376	TOTAL: \$247,356
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ozguner, U.	LARC/Montgomery, R. C.	42-Astro Engr	Lee, J. D.	LERC/Shyne, R. J.	49-Engr, NEC
Yurkovich, S.	LARC/Williams, J. P.		Bragg, M. B.	LERC/Coltrin, R. E.	
NAG 2-195	Ohio State University	4628	NAG 3-743	Ohio State University	4636
Discrete control modelling of computer-aided control of strongly interactive systems			Interaction between Tollmien Schlichting waves and free stream disturbances in boundary layer flows		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/82-09/30/88	FY88:	TOTAL: \$445,648	10/01/86-05/31/89	FY88: \$82,933	TOTAL: \$164,903
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, R. A.	ARC/Hartzell, E. J.	69-Psych, NEC	Bodonyi, R. J.	LERC/Goldstein, M. E.	41-Aero Engr
Jagacinski, R. J.					
NAG 2-542	Ohio State University	4629	NAG 3-755	Ohio State University	4637
Target signature modeling and bistatic scattering measurement studies			Powder agglomeration in microgravity experiment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$107,861	TOTAL: \$107,861	11/25/86-05/23/89	FY88:	TOTAL: \$138,506
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burnside, W. D.	ARC/Woo, A. C.	45-Elec Engr	Cawley, J. D.	LERC/Fox, D. S.	49-Engr, NEC
Marhefka, R. J.					
Gupta, I. J.					
NAG 3-28	Ohio State University	4630	NAG 3-764	Ohio State University	4638
Effects of ice formation on 2D aerodynamic shapes			Organized structures in a supersonic shear layer		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/80-10/30/88	FY88:	TOTAL: \$742,954	12/01/86-02/27/89	FY88: \$25,000	TOTAL: \$77,006
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bragg, M. B.	LERC/Potapczuk, M. G.	41-Aero Engr	Samimy, M.	LERC/Zaman, K. Q.	46-Mech Engr
Bragg, M. B.	LERC/Shaw, R.			LERC/Marek, C. J.	
NAG 3-159	Ohio State University	4631	NAG 3-773	Ohio State University	4639
Engineering calculations for communications satellite systems planning			Modeling of gear dynamics housing noise and transmissibility of a NASA spur gear test facility		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/20/81-10/14/88	FY88: \$130,000	TOTAL: \$775,666	01/10/87-01/08/89	FY88: \$68,357	TOTAL: \$128,325
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reilly, C. H.	LERC/Heyward, A.	45-Elec Engr	Houser, D. R.	LERC/Zakrajsek, J. J.	46-Mech Engr
Walton, E. K.	LERC/Miller, E. F.		Singh, R.		
NAG 3-374	Ohio State University	4632	NAG 3-784	Ohio State University	4640
Documentation office shapes for the helicopter icing flight test program			Measurement of the properties of lossy materials inside a finite conducting cylinder		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/29/82-11/30/88	FY88: \$20,000	TOTAL: \$408,899	02/20/87-09/30/88	FY88: \$49,541	TOTAL: \$174,835
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, J. D.	LERC/Potapczuk, M. G.	41-Aero Engr	Peters, L.	LERC/Steams, C. A.	49-Engr, NEC
	LERC/Richter, G. P.		Dominek, A. K.	LERC/Behrendt, D. R.	

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-790	Ohio State University	4641	NAG 5-781	Ohio State University	4649
Formulation of special transition finite elements			Terrestrial gravity data analysis for interim gravity model improvement		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/13/87-04/11/89	FY88: \$70,108	TOTAL: \$112,676	06/30/86-08/31/89	FY88: \$56,981	TOTAL: \$137,922
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sarigul, N.	LERC/Chamis, C. C.	41-Aero Engr	Rapp, R. H.	GSFC/Marsh, J. G.	13-Physics
	LERC/Caruso, J. J.				
NAG 3-824	Ohio State University	4642	NAG 5-826	Ohio State University	4650
Crystallization of the glassy grain boundary phase in silicon nitride ceramics			Emission line region variability implications for photoionization models		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/15/87-10/14/88	FY88: \$62,597	TOTAL: \$62,597	08/01/86-07/31/88	FY88:	TOTAL: \$34,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drummond, C. H.	LERC/Sanders, W. A.	47-Materials Engr	Peterson, B. M.	GSFC/Kondo, Y.	11-Astronomy
Lee, W. E.	LERC/Kiser, J. D.		Ferland, G. J.		
			Wagner, R. M.		
NAG 3-843	Ohio State University	4643	NAG 5-1027	Ohio State University	4651
Effects of magnetic nozzle configurations on plasma thrusters			Ultraviolet spectroscopy of planetary nebulae cosmological implications		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/05/87-12/04/88	FY88: \$74,999	TOTAL: \$74,999	12/15/87-12/14/88	FY88: \$10,600	TOTAL: \$10,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
York, T. M.	LERC/Mantieniaks, M. A.	13-Physics	Ferland, G. J.	GSFC/Kondo, Y.	11-Astronomy
			Capriotti, E. R.		
			Peterson, B. M.		
NAG 3-880	Ohio State University	4644	NAG 5-483	Ohio State University	4652
Plate vibrations a summary of useful results			Theoretical studies of the surface tension of liquid metal systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/88-02/28/89	FY88: \$20,000	TOTAL: \$20,000	07/01/84-12/31/87	FY88:	TOTAL: \$164,909
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leissa, A. W.	LERC/Kielb, R. E.	46-Mech Engr	Stroud, D. G.	MSFC/Yates, I. C.	47-Materials Engr
NAG 3-913	Ohio State University	4645	NAGW 297	Ohio State University	4653
Electromagnetic properties of ice coated surfaces			The role of acid and calcium gradients in gravitropism		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/15/88-06/14/89	FY88: \$224,604	TOTAL: \$224,604	03/01/82-02/28/89	FY88: \$54,942	TOTAL: \$343,532
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peters, L.	LERC/Shaw, R. J.	45-Elec Engr	Vans, M. E.	HQ-EB/Halstead, T. W.	51-Biological Sci
Burndide, D.	LERC/Burstadt, P. L.				
NAG 3-930	Ohio State University	4646	NAGW 625	Ohio State University	4654
Evaluation of coatings and lubricants for increased service lives of die casting dies			The role of gravity in apical dominance		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/88-10/01/89	FY88: \$39,930	TOTAL: \$39,930	04/01/84-10/31/88	FY88:	TOTAL: \$138,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Altan, T.	LERC/Soittis, D. G.	47-Materials Engr	Cline, M.	HQ-EB/Halstead, T. W.	51-Biological Sci
Lewis, R.	LERC/Krysiak, J.				
Shivpuri, R.					
NAG 5-519	Ohio State University	4647	NAGW 750	Ohio State University	4655
Development of imposed gravity field estimates using existing altimeter data			Search for extraterrestrial life research (SETI)		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/85-05/31/87	FY88:	TOTAL: \$49,885	05/01/85-01/31/89	FY88: \$15,000	TOTAL: \$56,334
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rapp, R. H.	GSFC/Christodoulidis, D. C.	19-Phys Sci, NEC	Kraus, J. D.	HQ-EB/Fogleman, S. W.	99-Multi-Discip
Engelis, T. L.	GSFC/Marsh, J. G.		Dixon, R. S.	HQ-EB/Rummel, J. D.	
NAG 5-768	Ohio State University	4648	NAGW 780	Ohio State University	4656
Comparison of high spected resolution atlas of integrated sunlight and the solar luminosity from five epochs			Cellular polarity and interactions in plant graviperception		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/15/86-06/14/88	FY88:	TOTAL: \$24,466	07/15/85-12/14/88	FY88: \$45,000	TOTAL: \$160,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mitchell, W. E., Jr.	GSFC/Bullock, G. D.	19-Phys Sci, NEC	Sack, F. D.	HQ-EB/Halstead, T. W.	54-Env Biology

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAGW 901	Ohio State University	4657
Effectives of hypergravity and hypogravity environments on cell cycle regulation during fern spore generation		
<i>Period</i>	<i>Obligations</i>	
06/15/86-12/31/88	FY88:	TOTAL: \$90,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Raghavan, V.	HQ-EB/Halstead, T. W.	55-Agriculture Sci
NAGW 973	Ohio State University	4658
Establish a center for the commercial development of space		
<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/89	FY88: \$1,165,000	TOTAL: \$1,735,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bossler, J.	HQ-IC/Oran, W. A.	41-Aero Engr
	HQ-IC/Brown, J.	
NAGW 1060	Ohio State University	4659
Research and training in hypersonics		
<i>Period</i>	<i>Obligations</i>	
03/15/87-07/31/89	FY88:	TOTAL: \$199,836
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petrie, S. L.	HQ-RF/Wander, S. M.	19-Phys Sci, NEC
Lee, J. D.	HQ-RF/Graves, R. A.	
NAGW 1129	Ohio State University	4660
Analysis of atmos occulation spectra		
<i>Period</i>	<i>Obligations</i>	
07/01/87-12/31/88	FY88:	TOTAL: \$35,384
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shaw, J. H.	HQ-EE/Kurylo, M. J.	31-Atmos Sci
	HQ-EE/Margitan, J. J.	
NAS 1-17450	Ohio State University	4661
Analysis of large aperture reflector antennas		
<i>Period</i>	<i>Obligations</i>	
07/18/83-08/31/89	FY88: \$10,000	TOTAL: \$209,610
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rudduck, C.	LARC/Beck, F. B.	45-Elec Engr
	LARC/Bailey, M. C.	
NAS 3-24888	Ohio State University	4662
Adaptive arrays and packet radio study program		
<i>Period</i>	<i>Obligations</i>	
03/17/86-06/30/87	FY88:	TOTAL: \$100,349
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Compton, R. T.	LERC/Spence, R. L.	45-Elec Engr
Garber, F. D.		
NAS 8-35595	Ohio State University	4663
Development of a coaxial viewing and vision system for gas tungsten arc welding		
<i>Period</i>	<i>Obligations</i>	
12/01/83-09/30/88	FY88:	TOTAL: \$423,537
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Richardson, R. W.	MSFC/Jones, C. S.	49-Engr, NEC
	MSFC/Kurgon, C.	
NCA 2-103	Ohio State University	4664
Analysis of a simulated 2-D viscous flow for the case of hover flight		
<i>Period</i>	<i>Obligations</i>	
01/01/86-12/31/87	FY88: \$1,100	TOTAL: \$55,813
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Conlisk, A. T.	ARC/Tung, C.	46-Mech Engr
NCA 2-154	Ohio State University	4665
Intensity and broadening coefficients of selected CO2 lines in the infrared		
<i>Period</i>	<i>Obligations</i>	
10/01/86-12/31/88	FY88: \$5,000	TOTAL: \$27,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rao, K. N.	ARC/Chackerian, C.	13-Physics
Guelachvili, G.		
Huet, T.		
NCA 2-288	Ohio State University	4666
Enroute flight path planning cooperative performance of flight crews and knowledge based systems		
<i>Period</i>	<i>Obligations</i>	
02/01/88-01/31/89	FY88: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, P. J.	ARC/Norman, S. D.	49-Engr, NEC
McCoy, C. E.	ARC/Chappell, S. L.	
NCA 2-298	Ohio State University	4667
Computational study of the jet in ground effect flow with dynamically adaptive grid		
<i>Period</i>	<i>Obligations</i>	
03/21/88-03/20/90	FY88: \$31,893	TOTAL: \$31,893
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nakamura, S.	ARC/Van Dalsem, W. R.	46-Mech Engr
NCA 2-322	Ohio State University	4668
Radar cross section computation of arbitrarily shaped cavities		
<i>Period</i>	<i>Obligations</i>	
06/21/88-06/20/90	FY88: \$39,987	TOTAL: \$39,987
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chou, R. C.	ARC/Woo, A. C.	45-Elec Engr
	ARC/Enomoto, F.	
NCA 2-351	Ohio State University	4669
Cognitive engineering in aerospace the alarm problem		
<i>Period</i>	<i>Obligations</i>	
09/01/88-08/31/89	FY88: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woods, D. D.	ARC/Shafto, M.	49-Engr, NEC
Smith, P. J.	ARC/Palmer, E. A.	
NCC 1-108	Ohio State University	4670
Development of decentralized control algorithms for flexible structures		
<i>Period</i>	<i>Obligations</i>	
09/01/86-04/30/87	FY88:	TOTAL: \$17,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ozguner, U.	LARC/Montgomery, R. C.	42-Astro Engr
	LARC/Williams, J. P.	
NCC 3-105	Ohio State University	4671
Multi layer film deposition for high t super conductors		
<i>Period</i>	<i>Obligations</i>	
01/30/88-01/29/89	FY88: \$49,969	TOTAL: \$49,969
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Valco, G. J.	LERC/Bhasin, K. B.	45-Elec Engr
	LERC/Leonard, R. F.	
NGR 36-008-161	Ohio State University	4672
The direct combination of satellite and gravity data		
<i>Period</i>	<i>Obligations</i>	
05/01/71-08/31/89	FY88: \$68,658	TOTAL: \$665,571
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rapp, R. H.	GSFC/Welker, J.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NGT 00-050-078 **Ohio State University** **4673**
NASA graduate student researchers program
Period *Obligations*
10/01/86-09/30/88 FY88: \$18,000 TOTAL: \$35,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, P. HQ-LE/Owens, F. C. 22-Computer Science

NAG 3-762 **Ohio University** **4681**
Multi frontal parallel solution method in vibration analysis of finite elements models
Period *Obligations*
01/01/87-12/31/88 FY88: TOTAL: \$39,930
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Akl, F. A. LERC/Kiraly, L. J. 46-Mech Engr

NGT 00-050-259 **Ohio State University** **4674**
NASA graduate student researchers program
Period *Obligations*
08/01/86-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herbert, T. HQ-XE/Owens, F. C. 46-Mech Engr

NAG 3-902 **Ohio University** **4682**
Parallel solution for the dynamic response of finite element models
Period *Obligations*
09/15/88-09/14/90 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Akl, F. A. LERC/Kiraly, L. J. 44-Civil Engr
Chesnut, T. L.

NGT 36-020-800 **Ohio State University** **4675**
NASA graduate student researchers program
Period *Obligations*
06/01/85-05/31/88 FY88: TOTAL: \$50,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Evans, M. L. HQ-LE/Owens, F. C. 51-Biological Sci

NCC 1-111 **Ohio University** **4683**
Reliability and performance of multisensor avionics systems
Period *Obligations*
06/01/87-11/30/87 FY88: TOTAL: \$23,657
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McFarland, R. H. LARC/Morrell, F. R. 45-Elec Engr
LARC/Bavuso, S. J.

NSG 1498 **Ohio State University** **4676**
Analysis of airborne antenna patterns
Period *Obligations*
01/16/78-05/31/89 FY88: \$69,838 TOTAL: \$813,228
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burnside, W. D. LARC/Gilreath, M. C. 45-Elec Engr
Rojas, R. G. LARC/Cockrell, C. R.

NGR 36-009-017 **Ohio University** **4684**
Joint university program in air transportation systems
Period *Obligations*
02/26/71-11/30/90 FY88: \$116,311 TOTAL: \$1,460,757
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McFarland, R. H. LARC/Morrell, F. R. 45-Elec Engr
LARC/Bryant, W. H.

NSG 1613 **Ohio State University** **4677**
Radar cross section studies
Period *Obligations*
05/01/79-01/31/89 FY88: \$593,747 TOTAL: \$3,722,694
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burnside, W. D. LARC/Gilreath, M. C. 45-Elec Engr
Peters, L., Jr.
Dominek, A. K.

NAG 1-444 **University of Akron** **4685**
Solution algorithms for steady and transient rolling contact
Period *Obligations*
09/01/84-02/28/89 FY88: \$43,466 TOTAL: \$166,526
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Padovan, J. LARC/Tanner, J. A. 29-Math/Computer, NEC
LARC/Lopez, M. C.

NSG 3302 **Ohio State University** **4678**
The application of optical computing techniques to jet engine controls
Period *Obligations*
08/01/79-12/31/87 FY88: TOTAL: \$450,897
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Collins, S. A., Jr. LERC/Baumbick, R. J. 13-Physics
LERC/Sellers, J. F.

NAG 1-448 **University of Akron** **4686**
Studies and characterization of processable polyimides with enhanced thermal stability and thermosetting polyimides
Period *Obligations*
02/07/84-03/31/89 FY88: \$99,189 TOTAL: \$290,664
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harris, F. W. LARC/Hergenrother, P. M. 12-Chemistry
LARC/Jensen, B. J.

NSG 5265 **Ohio State University** **4679**
Basic research for the Earth dynamics program
Period *Obligations*
04/01/78-06/30/89 FY88: \$52,574 TOTAL: \$673,721
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, I. I. GSFC/Frey, H. V. 32-Geological Sci
Goad, C. GSFC/Smith, D. E.

NAG 1-624 **University of Akron** **4687**
Nonlinear acoustic wave propagation in atmosphere
Period *Obligations*
12/01/85-11/30/87 FY88: TOTAL: \$35,303
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hariharan, S. I. LARC/Watson, W. R. 31-Atmos Sci

NAG 1-816 **Ohio University** **4680**
Independent assessment of the Loran C performance assurance system
Period *Obligations*
09/14/87-11/13/88 FY88: TOTAL: \$96,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McFarland, R. H. LARC/Morrell, F. R. 41-Aero Engr

NAG 1-779 **University of Akron** **4688**
High performance thermoplastic composites
Period *Obligations*
06/10/87-09/15/88 FY88: TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kelley, F. N. LARC/Hergenrother, P. M. 49-Engr, NEC
Meinecke, E. A. LARC/Johnston, N. J.
Harris, F. W.

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-50	University of Akron	4689
NASA LERC/Akron University graduate cooperative fellowship programs		
<i>Period</i>	<i>Obligations</i>	
06/01/80-04/03/89	FY88: \$45,000	TOTAL: \$430,560
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fertis, D. G.	LERC/Chamis, C. C.	41-Aero Engr
Chang, T. P.	LERC/Johns, R. H.	
Robinson, D. N.		
NAG 3-54	University of Akron	4690
Self adaptive solutions strategies		
<i>Period</i>	<i>Obligations</i>	
08/01/80-06/30/88	FY88:	TOTAL: \$191,390
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Padovan, J.	LERC/Chamis, C. C.	46-Mech Engr
	LERC/Hirschbein, M. S.	
NAG 3-55	University of Akron	4691
Helicopter transmission reliability model		
<i>Period</i>	<i>Obligations</i>	
08/01/80-08/31/88	FY88:	TOTAL: \$352,630
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Savage, M.	LERC/Lewicki, D. G.	46-Mech Engr
NAG 3-307	University of Akron	4692
Nonlinear finite element analysis of shells with large aspect ratios		
<i>Period</i>	<i>Obligations</i>	
06/30/82-06/30/88	FY88:	TOTAL: \$221,740
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chang, T. Y.	LERC/Thompson, R. L.	41-Aero Engr
	LERC/Johns, R. H.	
NAG 3-379	University of Akron	4693
Multiaxial structural behavior of high temperature materials		
<i>Period</i>	<i>Obligations</i>	
12/15/82-03/04/89	FY88: \$75,535	TOTAL: \$698,042
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Robinson, D. N.	LERC/Thompson, R. L.	41-Aero Engr
Ellis, J. R.		
NAG 3-416	University of Akron	4694
Computation of flow around airfoils with ice accretion using a 2-D Navier-Stokes computer code		
<i>Period</i>	<i>Obligations</i>	
04/01/83-08/31/87	FY88:	TOTAL: \$147,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Potapczuk, M. G.	LERC/Shaw, R. J.	41-Aero Engr
Drummond, J.		
NAG 3-479	University of Akron	4695
Mathematical and experimental modeling of impact ice dispersion mechanisms		
<i>Period</i>	<i>Obligations</i>	
10/30/83-02/24/89	FY88: \$30,000	TOTAL: \$251,602
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scavuzzo, R. J.	LERC/Olsen, W.	41-Aero Engr
Chu, M. L.		
NAG 3-531	University of Akron	4696
Numerical study of flow in the disk-stator cavity of a gas turbine		
<i>Period</i>	<i>Obligations</i>	
06/01/84-12/31/88	FY88:	TOTAL: \$97,568
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drummond, J. E.	LERC/De Anva, R. G.	41-Aero Engr
NAG 3-637	University of Akron	4697
Experimental study of the plume characteristics of electrothermal thrusters		
<i>Period</i>	<i>Obligations</i>	
06/01/85-02/24/89	FY88: \$55,238	TOTAL: \$154,527
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Serafini, J. S.	LERC/Stone, J. R.	49-Engr, NEC
NAG 3-664	University of Akron	4698
Hierarchical parallel computer architectures defined by computational multidisciplinary mechanics		
<i>Period</i>	<i>Obligations</i>	
10/07/85-03/04/89	FY88: \$75,000	TOTAL: \$206,129
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Padovan, J.	LERC/Chamis, C. C.	41-Aero Engr
	LERC/Hopkins, D. A.	
NAG 3-675	University of Akron	4699
Flow visualization methods for thin film technology		
<i>Period</i>	<i>Obligations</i>	
12/10/85-12/29/89	FY88: \$71,726	TOTAL: \$207,419
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Braun, M. J.	LERC/Proctor, M. P.	49-Engr, NEC
Batur, C.		
NAG 3-778	University of Akron	4700
Real time simulation methods for propulsion system dynamics		
<i>Period</i>	<i>Obligations</i>	
02/01/87-07/31/88	FY88:	TOTAL: \$47,963
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hartley, T. T.	LERC/Krosel, S.	41-Aero Engr
	LERC/Lehtinen, B.	
NAG 3-813	University of Akron	4701
Scanning tunneling spectroscopy		
<i>Period</i>	<i>Obligations</i>	
07/25/87-01/30/89	FY88: \$6,704	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henriksen, P. N.	LERC/Abel, P. B.	13-Physics
	LERC/Pepper, S. V.	
NAG 3-872	University of Akron	4702
Symbolic derivation of constitutive material models and automatic code generation		
<i>Period</i>	<i>Obligations</i>	
02/01/88-07/31/89	FY88: \$43,332	TOTAL: \$43,332
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tan, H. Q.	LERC/Arnold, S. M.	41-Aero Engr
NAG 3-900	University of Akron	4703
Vibration signature analysis of gear transmission and housing system		
<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$60,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Choy, F. K.	LERC/Zakrajsek, J. J.	46-Mech Engr
NAG 3-901	University of Akron	4704
Finite element implementation and computational techniques for constitutive modeling of high temperature composites		
<i>Period</i>	<i>Obligations</i>	
06/01/88-05/31/89	FY88: \$64,992	TOTAL: \$64,992
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chang, T. P.	LERC/Thompson, R. L.	41-Aero Engr
Saleeb, A. F.		

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-904 **University of Akron** **4705**
Improved large perturbation propulsion models for control system design
Period *Obligations*
05/15/88-05/14/89 FY88: \$54,730 TOTAL: \$54,730
Prin. Invest. NASA Tech. Officer CASE Category
Hartley, T. T. LERC/Melcher, K. J. 41-Aero Engr
LERC/Lorenzo, C. F.

NAG 1-8 **University of Cincinnati** **4713**
Spline collocation for viscous flow over-after body configurations
Period *Obligations*
11/01/79-12/31/88 FY88: TOTAL: \$283,458
Prin. Invest. NASA Tech. Officer CASE Category
Rubin, S. G. LARC/Compton, W. B. 41-Aero Engr
Khosla, P. K. LARC/Henderson, W. P.

NAG 3-906 **University of Akron** **4706**
Advanced optics for light scattering instrumentation
Period *Obligations*
06/01/88-05/31/89 FY88: \$35,334 TOTAL: \$35,334
Prin. Invest. NASA Tech. Officer CASE Category
Cheung, H. M. LERC/Glasgow, T. K. 13-Physics

NAG 1-465 **University of Cincinnati** **4714**
Study of external separated flows using Navier-Stokes equations
Period *Obligations*
04/01/84-03/31/87 FY88: TOTAL: \$87,601
Prin. Invest. NASA Tech. Officer CASE Category
Ghia, K. N. LARC/Rumsey, C. L. 41-Aero Engr
Ghia, U. LARC/Thomas, J. L.

NAG 3-923 **University of Akron** **4707**
Expert system diagnostic for 30/20 gigahertz
Period *Obligations*
08/23/88-08/22/89 FY88: \$64,834 TOTAL: \$64,834
Prin. Invest. NASA Tech. Officer CASE Category
Durkin, J. LERC/Petrik, E. J. 29-Math/Computer, NEC

NAG 1-548 **University of Cincinnati** **4715**
Improvements in the solution of the viscous shock-layer equations
Period *Obligations*
01/01/85-05/31/87 FY88: TOTAL: \$33,600
Prin. Invest. NASA Tech. Officer CASE Category
Khosla, P. K. LARC/Moss, J. N. 41-Aero Engr
Gordon, R.

NCC 3-93 **University of Akron** **4708**
Non invasive laser flow visualization and computer based digital imaging for flow quantification internal and external flow in large structures
Period *Obligations*
09/01/87-08/31/89 FY88: TOTAL: \$30,040
Prin. Invest. NASA Tech. Officer CASE Category
Braun, M. L. LERC/Russell, L. M. 46-Mech Engr
LERC/Lopez, I.

NAG 1-753 **University of Cincinnati** **4716**
Separated viscous flows using three-dimensional Navier-Stokes equations
Period *Obligations*
03/09/87-12/08/88 FY88: TOTAL: \$64,202
Prin. Invest. NASA Tech. Officer CASE Category
Ghia, K. N. LARC/Liu, C. H. 41-Aero Engr
Ghia, U. LARC/Thomas, J. L.

NCC 3-102 **University of Akron** **4709**
Microstrip antenna arrays with parasitic elements
Period *Obligations*
12/05/87-12/30/88 FY88: \$34,828 TOTAL: \$34,828
Prin. Invest. NASA Tech. Officer CASE Category
Lee, K. F. LERC/Lee, R. Q. 45-Elec Engr

NAG 2-175 **University of Cincinnati** **4717**
Study of optimal 3-D and 4-D trajectories for helicopters
Period *Obligations*
06/01/82-12/31/88 FY88: \$25,030 TOTAL: \$134,933
Prin. Invest. NASA Tech. Officer CASE Category
Slater, G. L. ARC/Davis, T. J. 41-Aero Engr
ARC/Erzberger, H.

NCC 3-104 **University of Akron** **4710**
Support of microgravity materials science lab software and hardware development at NASA Lewis
Period *Obligations*
12/20/87-12/30/88 FY88: \$121,545 TOTAL: \$121,545
Prin. Invest. NASA Tech. Officer CASE Category
Young, G. W. LERC/Roberts, G. P. 47-Materials Engr
Hariharan, S. I. LERC/Chait, A.

NAG 3-194 **University of Cincinnati** **4718**
Study of internal viscous flows
Period *Obligations*
07/15/81-11/30/88 FY88: TOTAL: \$158,813
Prin. Invest. NASA Tech. Officer CASE Category
Ghia, K. N. LERC/Katsanis, T. 41-Aero Engr
Ghia, U. LERC/Sockol, P. M.

NCC 3-109 **University of Akron** **4711**
Temperature and melt solid interface control during crystal growth
Period *Obligations*
05/15/88-05/14/89 FY88: \$41,382 TOTAL: \$41,382
Prin. Invest. NASA Tech. Officer CASE Category
Batur, C. LERC/Rosenthal, B. N. 47-Materials Engr
Braun, M. J. LERC/Glasgow, T. K.

NAG 3-297 **University of Cincinnati** **4719**
Development of injection devices based upon GaAs
Period *Obligations*
06/30/82-07/01/87 FY88: TOTAL: \$234,006
Prin. Invest. NASA Tech. Officer CASE Category
Henderson, H. T. LERC/Sundberg, G. R. 45-Elec Engr
Bose, A.

NGT 00-070-015 **University of Akron** **4712**
NASA graduate student researchers program
Period *Obligations*
01/01/87-12/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Harris, F. W. HQ-LE/Owens, F. C. 71-Anthropology

NAG 3-397 **University of Cincinnati** **4720**
Global relaxation with the PNS equations for internal flows
Period *Obligations*
03/01/83-12/28/88 FY88: \$31,045 TOTAL: \$123,883
Prin. Invest. NASA Tech. Officer CASE Category
Rubin, S. G. LERC/Adamczyk, J. J. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-506	University of Cincinnati	4721			
Tem studies of LCF tested marm 200 single crystals					
<i>Period</i>		<i>Obligations</i>			
12/28/83-10/15/89	FY88: \$8,040	TOTAL: \$66,415			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jayaraman, N.	LERC/Bonacuse, P.	47-Materials Engr			
	LERC/Gray, H.				
NAG 3-511	University of Cincinnati	4722			
Constitutive modeling of in elastic anisotropic material response					
<i>Period</i>		<i>Obligations</i>			
12/16/83-09/30/87	FY88:	TOTAL: \$347,509			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stouffer, D. C.	LERC/Thompson, R. L.	41-Aero Engr			
NAG 3-515	University of Cincinnati	4723			
High efficiency photochemical processing for semiconductor fabrication					
<i>Period</i>		<i>Obligations</i>			
01/05/84-11/30/87	FY88:	TOTAL: \$104,868			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mantei, T. D.	LERC/Bailey, S.	45-Elec Engr			
NAG 3-582	University of Cincinnati	4724			
Techniques for digital video image coding and implementation using systolic arrays					
<i>Period</i>		<i>Obligations</i>			
11/10/84-12/31/88	FY88:	TOTAL: \$152,976			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ramamoorthy, P. A.	LERC/Whyte, W. A.	45-Elec Engr			
	LERC/Miller, E. F.				
NAG 3-716	University of Cincinnati	4725			
Research on hypersonic flow					
<i>Period</i>		<i>Obligations</i>			
04/01/86-09/30/89	FY88:	TOTAL: \$38,553			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rubin, S. G.	LERC/Benson, T. J.	41-Aero Engr			
	Khosla, P. K.				
NAG 3-807	University of Cincinnati	4726			
Radiation hard fast switching power devices					
<i>Period</i>		<i>Obligations</i>			
07/15/87-11/14/88	FY88:	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kapoor, V. J.	LERC/Krawczonek, W. M.	45-Elec Engr			
NAG 3-852	University of Cincinnati	4727			
Optical waveguide technology utilizing silicon substrates for sensor applications					
<i>Period</i>		<i>Obligations</i>			
12/15/87-12/14/88	FY88: \$50,000	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Boyd, J. T.	LERC/Baumbick, R. J.	13-Physics			
	Jackson, H.				
NAG 3-938	University of Cincinnati	4728			
Experimental study of the effects of reduced gravity on the fluid behavior on an enclosed heated vessel					
<i>Period</i>		<i>Obligations</i>			
10/01/88-09/30/89	FY88: \$15,885	TOTAL: \$15,885			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Disimile, P. J.	LERC/Ross, H. D.	46-Mech Engr			
NAG 5-872	University of Cincinnati	4729			
Multifrequency observations of selected extragalactic sources					
<i>Period</i>		<i>Obligations</i>			
02/15/87-02/14/89	FY88:	TOTAL: \$19,512			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sitko, M. L.	GSFC/Kondo, Y.	11-Astronomy			
NAGW 1407	University of Cincinnati	4730			
A health monitoring technology center for space propulsion systems					
<i>Period</i>		<i>Obligations</i>			
07/01/88-02/28/89	FY88: \$299,895	TOTAL: \$299,895			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rubin, S. G.	HQ-RS/Hartman, S. C.	49-Engr, NEC			
NAS 8-34503	University of Cincinnati	4731			
Investigation of improved modal parameter estimation procedure					
<i>Period</i>		<i>Obligations</i>			
08/04/81-01/31/89	FY88:	TOTAL: \$192,017			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rost, R.	MSFC/Coleman, A. D.	41-Aero Engr			
	MSFC/Lewis, W. P.				
NCC 3-33	University of Cincinnati	4732			
III-V compound semiconductor technology					
<i>Period</i>		<i>Obligations</i>			
07/28/83-02/28/89	FY88: \$55,000	TOTAL: \$613,978			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kapoor, V. J.	LERC/Pouch, J.	19-Phys Sci, NEC			
	Dickman, J. E.	LERC/Leonard, R. F.			
NCC 3-36	University of Cincinnati	4733			
Electronic properties of diamond-like carbon films for solid state devices					
<i>Period</i>		<i>Obligations</i>			
12/15/83-02/11/89	FY88:	TOTAL: \$200,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kapoor, V. J.	LERC/Mirtich, M. J.	19-Phys Sci, NEC			
	LERC/Banks, B. A.				
NCC 3-75	University of Cincinnati	4734			
Electron beam induced damage					
<i>Period</i>		<i>Obligations</i>			
01/15/87-01/14/88	FY88:	TOTAL: \$17,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kapoor, V. J.	LERC/Williams, W. D.	45-Elec Engr			
	LERC/Leonard, R. F.				
NCC 3-92	University of Cincinnati	4735			
Optical channel waveguide structures					
<i>Period</i>		<i>Obligations</i>			
07/10/87-04/25/88	FY88:	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Boyd, J. T.	LERC/Bhasin, K.	45-Elec Engr			
NGT 00-050-086	University of Cincinnati	4736			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
07/01/86-06/30/89	FY88: \$18,000	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kapoor, V. J.	HQ-LE/Owens, F. C.	45-Elec Engr			

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NGT 00-070-007	University of Cincinnati	4737
Graduate student researchers underrepresented minority focus program		
<i>Period</i>	<i>Obligations</i>	
03/15/87-03/14/88	FY88:	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ghia, K. N.	HQ-LE/Owens, F. C.	41-Aero Engr
NGT 00-070-048	University of Cincinnati	4738
Graduate student researchers underrepresented minority focus program		
<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huston, R. L.	HQ-XE/Owens, F. C.	49-Engr, NEC
NGT 00-070-049	University of Cincinnati	4739
Graduate student researchers underrepresented minority focus program		
<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huston, R. L.	HQ-XE/Owens, F. C.	46-Mech Engr
NSG 3022	University of Cincinnati	4740
Investigation of a new family of semiconductor diodes based upon bulk effects of deep impurities		
<i>Period</i>	<i>Obligations</i>	
07/01/74-12/31/88	FY88:	TOTAL: \$816,619
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henderson, H. T.	LERC/Sundberg, G. R.	45-Elec Engr
NSG 3188	University of Cincinnati	4741
Investigations into the geometry of straight and spiral bevel gears		
<i>Period</i>	<i>Obligations</i>	
04/01/78-11/30/88	FY88:	TOTAL: \$307,906
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huston, R. L.	LERC/Oswald, F. B.	46-Mech Engr
NAG 3-526	University of Dayton	4742
Numerical simulation of axisymmetric sheap layers		
<i>Period</i>	<i>Obligations</i>	
02/20/84-10/01/88	FY88:	TOTAL: \$188,571
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scott, J. N.	LERC/Stone, J. R.	41-Aero Engr
Whitford, D. H.	LERC/Rice, E.	
NAG 3-665	University of Dayton	4743
Numerical simulation of the flow field over ice accretion shapes		
<i>Period</i>	<i>Obligations</i>	
10/30/85-11/27/88	FY88: \$50,319	TOTAL: \$152,231
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scott, J. N.	LERC/Potapczuk, M. G.	41-Aero Engr
Hankey, W.		
NAG 3-774	University of Dayton	4744
Test automation system with a laser interferometer		
<i>Period</i>	<i>Obligations</i>	
02/05/87-12/31/87	FY88:	TOTAL: \$79,870
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hartman, G.	LERC/Telesman, J.	49-Engr, NEC
NAS 5-28297	University of Dayton	4745
Verification and analysis of satellite derived data		
<i>Period</i>	<i>Obligations</i>	
11/01/84-10/31/88	FY88: \$134,236	TOTAL: \$472,909
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Luers, J. K.	GSFC/Schmidlin, F. J.	31-Atmos Sci
NAS 8-36280	University of Dayton	4746
Development of polyisocyanate pour foam formulator for Space Shuttle external tank protection system		
<i>Period</i>	<i>Obligations</i>	
03/28/86-10/31/87	FY88:	TOTAL: \$140,910
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harvey, J. A.	MSFC/Mullins, W. H.	43-Chem Engr
	MSFC/Brown, L.	
NGT 00-050-082	University of Dayton	4747
NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$54,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fraker, J. R.	HQ-XE/Owens, F. C.	41-Aero Engr
NAG 3-42	University of Toledo	4748
Digital television simulation facility		
<i>Period</i>	<i>Obligations</i>	
03/31/80-09/30/88	FY88:	TOTAL: \$401,885
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kwatra, S. C.	LERC/Whyte, W. A.	45-Elec Engr
	LERC/Miller, E. F.	
NAG 3-72	University of Toledo	4749
Numerical simulation of heat transfer phenomena occurring during deicing of aircraft components		
<i>Period</i>	<i>Obligations</i>	
06/01/80-12/27/88	FY88: \$36,500	TOTAL: \$239,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dewitt, K. J.	LERC/Vargas, M.	41-Aero Engr
Keith, T. G.	LERC/Reinmann, J. J.	
NAG 3-157	University of Toledo	4750
Interference susceptibility of digital television systems		
<i>Period</i>	<i>Obligations</i>	
01/09/81-10/13/89	FY88: \$100,000	TOTAL: \$515,466
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kwatra, S. C.	LERC/Stevens, G. H.	22-Computer Science
NAG 3-577	University of Toledo	4751
Fluid physics phenomena of resistojet thruster		
<i>Period</i>	<i>Obligations</i>	
10/15/84-03/12/89	FY88: \$25,000	TOTAL: \$110,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dewitt, K. J.	LERC/Morren, W. E.	19-Phys Sci, NEC
Keith, T. G.	LERC/Penko, P. F.	
NAG 3-699	University of Toledo	4752
Computer architecture evaluation for structural analysis computations		
<i>Period</i>	<i>Obligations</i>	
02/10/86-02/08/89	FY88: \$60,000	TOTAL: \$169,632
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Standley, H. M.	LERC/Kiraly, L. J.	49-Engr, NEC
NAG 3-708	University of Toledo	4753
Electrical performance characteristics of high power inverters for space power applications		
<i>Period</i>	<i>Obligations</i>	
03/05/86-10/30/89	FY88: \$94,370	TOTAL: \$177,540
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stuart, T. A.	LERC/Schwarze, G. E.	45-Elec Engr
King, R. J.	LERC/Baumann, E. D.	

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-713	University of Toledo	4754	Computational fluid dynamic investigation of flow in arcjet thruster		
	<i>Period</i>	<i>Obligations</i>			
04/15/86-04/15/89	FY88:	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Keith, T. G., Jr.	LERC/Curran, F. M.	46-Mech Engr			
Pawles, G. E.	LERC/Sarmiento, C. J.				
NAG 3-742	University of Toledo	4755	Optimization of propan blades with dynamic constraints		
	<i>Period</i>	<i>Obligations</i>			
09/01/86-11/14/88	FY88: \$55,400	TOTAL: \$107,800			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Keith, T. G.	LERC/Kaza, K. R.	41-Aero Engr			
NAG 3-757	University of Toledo	4756	Implicit numerical methods for vortex stabilized arcs		
	<i>Period</i>	<i>Obligations</i>			
04/17/87-06/29/89	FY88: \$20,000	TOTAL: \$45,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Keith, T. G.	LERC/Curran, F.	46-Mech Engr			
Pawlas, G. E.	LERC/Sarmiento, C.				
NAG 3-799	University of Toledo	4757	System study for application of VSAT at Ku band		
	<i>Period</i>	<i>Obligations</i>			
05/30/87-01/30/89	FY88: \$35,325	TOTAL: \$135,325			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kwatra, S. C.	LERC/Budinger, J. M.	45-Elec Engr			
Farison, J.					
NAG 3-865	University of Toledo	4758	Digital modem development		
	<i>Period</i>	<i>Obligations</i>			
01/05/88-09/25/88	FY88: \$32,861	TOTAL: \$32,861			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kwatra, S. C.	LERC/Budinger, J. M.	45-Elec Engr			
Farison, J. B.					
NAG 3-910	University of Toledo	4759	Surface tension driven flows for a droplet in a microgravity environment		
	<i>Period</i>	<i>Obligations</i>			
06/15/88-06/14/89	FY88: \$7,600	TOTAL: \$7,600			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Oliver, D. O.	LERC/Chai, A. T.	43-Chem Engr			
Dewitt, K. J.					
NAG 3-937	University of Toledo	4760	Analysis and evaluation of an integrated laminar flow control propulsion system		
	<i>Period</i>	<i>Obligations</i>			
09/19/88-09/18/89	FY88: \$31,000	TOTAL: \$31,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Keith, T. G.	LERC/Luidens, R. W.	41-Aero Engr			
Dewitt, K. J./Hrach, F. J.					
NAG 5-253	University of Toledo	4761	Observation of stellar winds in two massive binary stars in known orbits		
	<i>Period</i>	<i>Obligations</i>			
07/15/82-07/31/89	FY88:	TOTAL: \$42,493			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Morrison, N. D.	GSFC/Kondo, Y.	11-Astronomy			
Grigsby, J. A.					
NAG 5-586	University of Toledo	4762	Database interfaces on NASA's heterogeneous database system		
	<i>Period</i>	<i>Obligations</i>			
07/15/85-09/30/96	FY88:	TOTAL: \$25,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kertz, G.	GSFC/Jacobs, B.	22-Computer Science			
	GSFC/Berbert, J.				
NAG 5-954	University of Toledo	4763	Interacting of several selected binary star system		
	<i>Period</i>	<i>Obligations</i>			
09/01/87-08/31/89	FY88: \$8,500	TOTAL: \$16,600			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bopp, B. W.	GSFC/Kondo, Y.	11-Astronomy			
Parsons, S. B.					
NAG 5-970	University of Toledo	4764	Ab initio models of stellar atmosphere		
	<i>Period</i>	<i>Obligations</i>			
09/01/87-08/31/89	FY88:	TOTAL: \$15,612			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, L. S.	GSFC/Kondo, Y.	11-Astronomy			
NAG 5-979	University of Toledo	4765	Resonance line profiles in late O and early B type main sequence stars		
	<i>Period</i>	<i>Obligations</i>			
09/01/87-08/31/89	FY88:	TOTAL: \$28,439			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Morrison, N. D.	GSFC/Kondo, Y.	11-Astronomy			
Grigsby, J. A.					
NAG 5-1065	University of Toledo	4766	Large-angle scattering in reflection nebulae and the grain-size distribution		
	<i>Period</i>	<i>Obligations</i>			
08/01/88-07/31/89	FY88: \$14,100	TOTAL: \$14,100			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Witt, A.	GSFC/Kondo, Y.	11-Astronomy			
NAG 5-1069	University of Toledo	4767	A B initio models of the solar atmosphere SMM		
	<i>Period</i>	<i>Obligations</i>			
09/01/88-02/28/89	FY88: \$14,579	TOTAL: \$14,579			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, L. S.	GSFC/Bullock, G. D.	19-Phys Sci, NEC			
	GSFC/Gurman, J. B.				
NAGW 89	University of Toledo	4768	Properties of interstellar grains		
	<i>Period</i>	<i>Obligations</i>			
09/01/80-02/28/87	FY88:	TOTAL: \$90,937			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Witt, A. N.	HQ-EZ/Stencel, R. E.	11-Astronomy			
	HQ-EZ/Weiler, E. J.				
NAGW 229	University of Toledo	4769	Chromospheric activity in the FK Comae stars		
	<i>Period</i>	<i>Obligations</i>			
09/01/81-08/31/87	FY88:	TOTAL: \$39,780			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bopp, B. W.	HQ-EZ/Weiler, E. J.	11-Astronomy			
	HQ-EZ/Stencel, R. E.				

NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

<p>NAGW 969 University of Toledo 4770</p> <p>The origin of comets</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>10/01/86-09/30/87 FY88: TOTAL: \$21,600</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Delsemme, A. H. HQ-EL/Brinton, H. C. 31-Atmos Sci</p> <p style="margin-left: 100px;">HQ-EL/Quaide, W. L.</p>	<p>NAG 9-263 Wright State University 4778</p> <p>Physiologic effects and tolerance of hemorrhagic shock modeled primates during +gx acceleration</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>12/01/87-01/01/89 FY88: \$107,585 TOTAL: \$107,585</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Hamilton, G. C. JSC/Boyce, V. 51-Biological Sci</p> <p>Olson, J. E.</p> <p>Stepaniak, P. C.</p>
<p>NCC 3-34 University of Toledo 4771</p> <p>Mass transport phenomena between bubbles and dissolved gases in liquid under reduced gravity conditions</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>11/15/83-03/11/89 FY88: \$79,991 TOTAL: \$252,891</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Dewitt, K. J. LERC/Chai, A. T. 49-Engr, NEC</p> <p>Yung, C. N.</p>	<p>NCC 2-229 Wright State University 4779</p> <p>Evaluation of putative neurochemical intermediaries in space motion sickness</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>01/01/83-12/31/88 FY88: \$68,438 TOTAL: \$451,387</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Crampton, G. H. ARC/Daunton, N. G. 51-Biological Sci</p> <p>Luocot, J. B. ARC/Corcoran, M. L.</p>
<p>NCC 3-69 University of Toledo 4772</p> <p>Fluid and thermal analysis of propulsion systems</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>09/01/86-11/29/88 FY88: \$67,083 TOTAL: \$139,353</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Dewitt, K. J. LERC/Cassidy, J. 41-Aero Engr</p> <p>Chao, D. F.</p>	<p>NGT 36-024-790 Wright State University 4780</p> <p>Specialized post MD training in aerospace medicine</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>01/01/85-12/31/88 FY88: \$417,377 TOTAL: \$3,108,051</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Mohler, S. HQ-EB/Evans, F. D. 59-Life Sci, NEC</p> <p style="margin-left: 100px;">HQ-EB/Nicogossian, A. E.</p>
<p>NGT 00-050-371 University of Toledo 4773</p> <p>NASA graduate student researchers program</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Dewitt, K. J. HQ-XE/Owens, F. C. 43-Chem Engr</p> <p>Oliver, D. O.</p>	<p style="text-align: center;">OKLAHOMA</p>
<p>NSG 3139 University of Toledo 4774</p> <p>Stability analysis of wind turbines with long flexible blades</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>02/22/77-01/19/89 FY88: \$70,110 TOTAL: \$613,177</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Keith, T. G., Jr. LERC/Brown, G. V. 41-Aero Engr</p> <p style="margin-left: 100px;">LERC/Kaza, K. V.</p>	<p>NAG 1-694 Oklahoma State University 4781</p> <p>Growth and characterization of materials for tunable lasers in the near infrared spectral region</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>08/01/86-01/31/89 FY88: \$74,068 TOTAL: \$168,896</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Powell, R. C. LARC/Brockman, P. 13-Physics</p> <p>Martin, J. J. LARC/Hess, R. V.</p>
<p>NSG 5006 University of Toledo 4775</p> <p>Investigation of an ap variable star</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>05/01/74-05/14/88 FY88: TOTAL: \$1,673</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Molnar, M. R. GSFC/Kupperian, J. E. 11-Astronomy</p>	<p>NASW 4000 Oklahoma State University 4782</p> <p>Management and operation of the aerospace educator services project</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>10/01/84-09/30/88 FY88: \$2,415,321 TOTAL: \$9,126,083</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Wiggins, K. E. HQ-LF/Bilbrough, L. B. 99-Multi-Discip</p> <p>Erlich, N.</p>
<p>NAG 3-793 Wittenberg University 4776</p> <p>Radiation effects on power transistor performance</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>04/01/87-10/17/88 FY88: \$48,862 TOTAL: \$66,178</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Frasca, A. J. LERC/Schwarze, G. E. 13-Physics</p>	<p>NCCW 5 Oklahoma State University 4783</p> <p>Teacher in space project</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>10/16/85-08/31/89 FY88: \$396,068 TOTAL: \$2,599,640</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Wiggins, K. HQ-XE/Bilbrough, L. 99-Multi-Discip</p>
<p>NAG 5-956 Wright State University 4777</p> <p>Design/study of a spacecraft cooling system</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>07/15/87-12/31/88 FY88: \$71,292 TOTAL: \$101,292</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Faghri, A. GSFC/Swanson, T. D. 46-Mech Engr</p> <p style="margin-left: 100px;">GSFC/McIntosh, R.</p>	<p>NGT 00-070-092 Oklahoma State University 4784</p> <p>Graduate student researchers underrepresented minority focus program</p> <p style="margin-left: 100px;"><i>Period</i> <i>Obligations</i></p> <p>07/01/88-06/30/89 FY88: \$18,000 TOTAL: \$18,000</p> <p style="margin-left: 100px;"><i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i></p> <p>Martin, J. J. HQ-XE/Owens, F. C. 13-Physics</p>

**NASA'S UNIVERSITY PROGRAM
OKLAHOMA (Continued)**

NASW 4192 Southeastern Oklahoma State Univ. 4785
Operation of Industrial Application Center for dissemination of NASA technology
Period *Obligations*
07/01/86-09/30/88 FY88: \$73,000 TOTAL: \$436,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McRorey, T. J. HQ/Bivins, R. 99-Multi-Discip

NAG 1-886 University of Oklahoma - Norman 4786
Integrated aerodynamics/propulsion study for generic aerospace planes based on waverider concepts
Period *Obligations*
05/20/88-10/19/88 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emanuel, G. LARC/Bauer, S. X. 41-Aero Engr
Rasmussen, M. L. LARC/Wood, R. M.

NAG 5-525 University of Oklahoma - Norman 4787
Composite studies of atmospheric cyclogenesis based in satellite imagery
Period *Obligations*
05/01/85-11/30/87 FY88: TOTAL: \$73,774
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carr, F. H. GSFC/Vccellini, L. 31-Atmos Sci

NAG 5-850 University of Oklahoma - Norman 4788
Retrospective studies of the use of LANDSAT data in hydrologic models for land atmosphere analysis
Period *Obligations*
10/01/86-04/14/89 FY88: \$81,803 TOTAL: \$181,914
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duchon, C. E. GSFC/Oseroff, H. 19-Phys Sci, NEC
Langran, K. J.

NAG 9-228 University of Oklahoma - Norman 4789
Variational high resolution data assimilation and short range weather forecasting
Period *Obligations*
05/15/87-05/15/89 FY88: \$85,000 TOTAL: \$170,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sasaki, Y. K. JSC/Whitehead, V. 31-Atmos Sci

OREGON

NAG 1-589 Oregon Graduate Center 4790
Biogenic trace gas measurements in the Amazon boundary layer
Period *Obligations*
05/16/85-12/15/87 FY88: TOTAL: \$238,242
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rasmussen, R. A. LARC/Hoell, J. M. 31-Atmos Sci
Khalil, M. A. LARC/Bendura, R. J.

NAG 3-434 Oregon Graduate Center 4791
Evaluation of single crystal Ia B cathodes for use in a high frequency backward wave oscillator tube
Period *Obligations*
06/30/83-11/28/86 FY88: TOTAL: \$202,789
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Swanson, L. W. LERC/Wintucky, E. G. 19-Phys Sci, NEC
Davis, P. R.

NAG 5-734 Oregon Graduate Center 4792
Dynamic characteristics of lai-field radiation of current modulated phase-locked diode laser arrays
Period *Obligations*
02/01/86-04/30/87 FY88: TOTAL: \$74,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Elliott, R. A. GSFC/Abshire, J. B. 45-Elec Engr
Defreez, R. K. GSFC/Forrest, K. A.

NAGW 280 Oregon Graduate Center 4793
Fluorocarbons, chlorocarbons, and nitrous oxide: Continuous measurements at 5 global sites
Period *Obligations*
12/01/81-03/31/88 FY88: TOTAL: \$1,656,212
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rasmussen, R. A. HQ-EE/Demore, W. B. 31-Atmos Sci
HQ-EE/Smith, M. A.

NAS 8-35333 Oregon Health Sciences University 4794
Cell partition in two polymer aqueous phases
Period *Obligations*
05/05/83-12/31/89 FY88: \$90,000 TOTAL: \$458,818
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brooks, D. E. MSFC/Gardner, L. B. 59-Life Sci, NEC
MSFC/Snyder, R. S.

NAG 5-51 Oregon State University 4795
Investigation of small-scale terrain effects within climate models
Period *Obligations*
05/15/80-10/31/87 FY88: TOTAL: \$395,529
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Han, Y. J. GSFC/Shukla, J. 31-Atmos Sci
GSFC/Randall, D.

NAG 9-63 Oregon State University 4796
Chemical studies of lunar and meteoritic samples
Period *Obligations*
02/01/83-02/01/89 FY88: \$83,500 TOTAL: \$457,181
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schmitt, R. A. JSC/Browne, I. D. 32-Geological Sci
Hughes, S. S.

NAGW 727 Oregon State University 4797
Possible dynamical mechanisms for the Martian polar warming phenomenon
Period *Obligations*
03/01/85-09/30/87 FY88: TOTAL: \$105,938
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barnes, J. R. HQ-EL/Brinton, H. C. 46-Mech Engr
HQ-EL/Quaide, W. L.

NAGW 730 Oregon State University 4798
Temporal and spatial variability of sea surface winds
Period *Obligations*
02/01/85-01/31/89 FY88: \$104,947 TOTAL: \$490,324
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chelton, D. B. HQ-EE/Richman, J. G. 33-Oceanography

NAGW 869 Oregon State University 4799
Analysis of AVHRR, CZCS and historical in situ chlorophyll data off the Oregon coast
Period *Obligations*
02/01/86-01/31/89 FY88: \$184,448 TOTAL: \$367,832
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chelton, D. B. HQ-EE/Yoder, J. A. 33-Oceanography
Strub, P. T. HQ-EE/Wilson, W. S.

**NASA'S UNIVERSITY PROGRAM
OREGON (Continued)**

NAGW 924 Oregon State University 4800
 Research in remote sensing of vegetation
Period Obligations
 08/01/86-03/31/88 FY88: TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
 Schrumpf, B. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC

NAGW 948 Oregon State University 4801
 Estimating annual net photosynthesis by remote sensing in forests of the Pacific northwest
Period Obligations
 09/01/86-11/01/87 FY88: TOTAL: \$49,610
Prin. Invest. NASA Tech. Officer CASE Category
 Waring, R. H. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
 HQ-EE/Murphy, R. E.

NAGW 1123 Oregon State University 4802
 Student program in satellite oceanography
Period Obligations
 07/01/87-09/30/89 FY88: \$137,947 TOTAL: \$296,410
Prin. Invest. NASA Tech. Officer CASE Category
 Chelton, D. B. HQ-EE/Richman, J. G. 33-Oceanography
 Strub, P. T. HQ-EE/Wilson, W. S.

NAGW 1127 Oregon State University 4803
 Waves and instability in the atmospheres of Mars
Period Obligations
 07/01/87-09/30/88 FY88: TOTAL: \$53,656
Prin. Invest. NASA Tech. Officer CASE Category
 Barnes, J. R. HQ-E/Fox, K. 31-Atmos Sci
 HQ-E/Quaide, W. L.

NAGW 1251 Oregon State University 4804
 Event scale relationships between surface velocity temperature and chlorophyll in the costal ocean as seen by satellite
Period Obligations
 12/15/87-12/14/88 FY88: \$163,757 TOTAL: \$163,757
Prin. Invest. NASA Tech. Officer CASE Category
 Strub, P. T. HQ-EE/Yoder, J. A. 33-Oceanography
 HQ-EE/Wilson, W. S.

NAGW 1253 Oregon State University 4805
 Analysis of components of the gravitropic response in planets using purified plasma membrane vesicles
Period Obligations
 01/01/88-12/31/88 FY88: \$44,999 TOTAL: \$44,999
Prin. Invest. NASA Tech. Officer CASE Category
 Lomax, T. L. HQ-EB/Halstead, T. W. 51-Biological Sci

NAGW 1305 Oregon State University 4806
 Development of numerical models
Period Obligations
 12/01/87-11/30/88 FY88: \$96,742 TOTAL: \$96,742
Prin. Invest. NASA Tech. Officer CASE Category
 Bennett, A. F. HQ-EE/Richman, J. G. 33-Oceanography
 HQ-EE/Wilson, W. S.

NAGW 1316 Oregon State University 4807
 Satellite studies of biological physical processes in the eastern north pacific
Period Obligations
 06/01/88-11/30/88 FY88: \$227,717 TOTAL: \$227,717
Prin. Invest. NASA Tech. Officer CASE Category
 Abbott, M. R. HQ-EE/Yoder, J. A. 33-Oceanography
 HQ-EE/Wilson, S. W.

NCA 2-205 Oregon State University 4808
 Dust transport in a Mars general circulation model
Period Obligations
 04/01/87-03/31/89 FY88: TOTAL: \$31,758
Prin. Invest. NASA Tech. Officer CASE Category
 Barnes, J. R. ARC/Pollack, J. B. 31-Atmos Sci

NGT 00-050-167 Oregon State University 4809
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$17,980 TOTAL: \$35,074
Prin. Invest. NASA Tech. Officer CASE Category
 Barnes, J. R. HQ-XE/Owens, F. C. 31-Atmos Sci

NGT 00-050-244 Oregon State University 4810
 NASA graduate student researchers program
Period Obligations
 09/01/87-08/31/89 FY88: \$14,000 TOTAL: \$14,000
Prin. Invest. NASA Tech. Officer CASE Category
 Frenkel, R. E. HQ-XE/Owens, F. C. 32-Geological Sci

NGT 00-050-351 Oregon State University 4811
 NASA graduate student researchers program
Period Obligations
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Frenkel, R. HQ-XE/Owens, F. C. 32-Geological Sci

NGT 38-058-800 Oregon State University 4812
 NASA graduate student researchers program
Period Obligations
 06/15/84-06/30/87 FY88: TOTAL: \$46,814
Prin. Invest. NASA Tech. Officer CASE Category
 Frenkel, R. HQ-LE/Owens, F. C. 32-Geological Sci

NSG 5343 Oregon State University 4813
 Techniques for applications of satellite data to the quantitative forecasting of precipitation
Period Obligations
 05/01/79-08/31/88 FY88: TOTAL: \$64,565
Prin. Invest. NASA Tech. Officer CASE Category
 Decker, F. W. GSFC/Adler, R. F. 31-Atmos Sci

NSG 7178 Oregon State University 4814
 Examination of the suggested modes of origin of channels found on the Moon and Mars
Period Obligations
 01/01/76-12/31/88 FY88: \$30,000 TOTAL: \$360,532
Prin. Invest. NASA Tech. Officer CASE Category
 Komar, P. D. HQ-EL/Underwood, J. R. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAG 1-697 Portland State University 4815
 Tropospheric HO experimental studies
Period Obligations
 09/01/86-08/31/89 FY88: TOTAL: \$350,347
Prin. Invest. NASA Tech. Officer CASE Category
 O'brien, R. J. LARC/Hoell, J. M. 31-Atmos Sci
 Hard, T. M. LARC/Bendura, R. J.
 Migliore, H. J.

**NASA'S UNIVERSITY PROGRAM
OREGON (Continued)**

NGT 00-070-054 **Portland State University** **4816**
Graduate student researchers underrepresented minority focus program
Period *Obligations*
09/16/87-09/15/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'Brien, R. J. HQ-XE/Owens, F. C. 12-Chemistry

NAG 1-612 **Carnegie - Mellon University** **4823**
Response of joint dominated space structures
Period *Obligations*
08/15/85-07/15/87 FY88: TOTAL: \$113,084
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Griffin, J. H. LARC/Horta, L. G. 42-Astro Engr
Bielak, J.

NAG 1-813 **University of Oregon - Eugene** **4817**
Far infrared detector test facility support
Period *Obligations*
09/01/87-05/31/88 FY88: TOTAL: \$59,044
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Radostitz, J. V. LARC/Nolt, I. G. 13-Physics
Park, K. LARC/Miller, W. E.

NAG 1-903 **Carnegie - Mellon University** **4824**
Optical linear algebra processors for CFD
Period *Obligations*
08/01/88-11/30/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Casasent, D. LARC/Bryant, W. H. 45-Elec Engr
LARC/Murray, N. D.

NAG 2-383 **University of Oregon - Eugene** **4818**
Qualitative mechanism models and the rationalization of procedures
Period *Obligations*
01/01/86-10/31/88 FY88: \$40,147 TOTAL: \$139,593
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Farley, A. M. ARC/Remington, R. W. 22-Computer Science
ARC/Palmer, E.

NAG 3-166 **Carnegie - Mellon University** **4825**
Turbulent flow in cryogenic face seals
Period *Obligations*
03/15/81-11/18/87 FY88: \$10,000 TOTAL: \$272,561
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hughes, W. F. LERC/Hendricks, R. C. 46-Mech Engr
Basu, P.

NAG 5-755 **University of Oregon - Eugene** **4819**
Lithospheric dynamics of the southern California region
Period *Obligations*
03/15/86-04/30/89 FY88: \$67,647 TOTAL: \$183,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Humphreys, E. D. GSFC/Coates, R. J. 32-Geological Sci

NAG 3-463 **Carnegie - Mellon University** **4826**
Modeling the microstructural effects of hydrogen related fatigue crack growth in nickel based super alloy single crystals
Period *Obligations*
10/15/83-12/11/88 FY88: \$99,987 TOTAL: \$528,862
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bernstein, I. M. LERC/Dreshfield, R. L. 47-Materials Engr
Thompson, A. W.
Sirignano, W. A.

NCA 2-195 **University of Oregon - Eugene** **4820**
Ge ga detector development for atmospheric applications
Period *Obligations*
02/01/87-01/31/88 FY88: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Radostitz, J. V. ARC/Goebel, J. H. 13-Physics
Nolt, I. G. ARC/McCreight, C. R.

NAG 3-614 **Carnegie - Mellon University** **4827**
Theoretical studies on a heat driven lamp
Period *Obligations*
02/28/85-06/30/87 FY88: TOTAL: \$54,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lawless, J. L. LERC/Chubb, D. L. 46-Mech Engr

PENNSYLVANIA

NAG 1-190 **Carnegie - Mellon University** **4821**
Advanced automated control of aircraft in terminal
Period *Obligations*
06/01/81-11/30/88 FY88: \$110,000 TOTAL: \$822,033
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Siewiorek, D. P. LARC/Padilla, P. A. 45-Elec Engr
Segall, Z. LARC/Butler, R. W.

NAG 3-689 **Carnegie - Mellon University** **4828**
Rotary engine spray modelling
Period *Obligations*
01/10/86-02/22/89 FY88: \$75,152 TOTAL: \$185,152
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ramos, J. I. LERC/Nguyen, H. L. 41-Aero Engr

NAG 1-575 **Carnegie - Mellon University** **4822**
Novel, parallel architectures and algorithms for linear algebra processing
Period *Obligations*
04/01/85-03/31/87 FY88: TOTAL: \$159,878
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Casasent, D. P. LARC/Park, S. K. 29-Math/Computer, NEC
LARC/Huck, F. O.

NAG 3-811 **Carnegie - Mellon University** **4829**
Base reaction optimization for manipulators with redundant kinematics
Period *Obligations*
07/06/87-07/04/89 FY88: \$63,472 TOTAL: \$95,481
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Desilva, C. W. LERC/Lawrence, C. 46-Mech Engr

NAG 3-929 **Carnegie - Mellon University** **4830**
Numerical study of the flow fields inside gas turbine engines
Period *Obligations*
10/28/88-10/27/89 FY88: \$62,120 TOTAL: \$62,120
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shih, T. I. LERC/Roelke, R. J. 41-Aero Engr
LERC/Moore, R. D.

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAG 5-1046 Carnegie - Mellon University 4831
The designs and implementation of algorithms for a heterogeneous arrangement of high performance processors
Period *Obligations*
04/15/88-04/14/89 FY88: \$39,987 TOTAL: \$39,987
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Siewiorek, D. P. GSFC/Dorband, J. E. 22-Computer Science
GSFC/Fischer, J. R.

NAG 5-1091 Carnegie - Mellon University 4832
Novel technology advanced control systems
Period *Obligations*
10/01/88-01/31/90 FY88: \$99,853 TOTAL: \$99,853
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Khosla, P. K. GSFC/Andary, J. F. 49-Engr, NEC

NAG 9-247 Carnegie - Mellon University 4833
Correlation filters for orientation estimation
Period *Obligations*
09/01/87-09/01/89 FY88: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kumar, V. JSC/Juday, R. 42-Astro Engr

NAGW 1175 Carnegie - Mellon University 4834
Autonomous planetary rover
Period *Obligations*
10/01/87-09/30/88 FY88: \$1,000,000 TOTAL: \$1,000,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kanade, T. HQ-RC/Holcomb, L. B. 49-Engr, NEC
Mitchell, T. HQ-RC/Solloway, C. B.
Whittaker, W. L.

NCA 2-300 Carnegie - Mellon University 4835
Optical processing for terrain analysis
Period *Obligations*
04/15/88-04/14/90 FY88: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Casasent, D. ARC/Lum, H. 22-Computer Science

NCC 2-463 Carnegie - Mellon University 4836
Machine learning and planning in reactive environments
Period *Obligations*
03/01/87-10/31/88 FY88: \$280,000 TOTAL: \$420,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mitchell, T. ARC/Friedland, P. E. 22-Computer Science
Mason, M. ARC/Bull, J. S.
Carbonell, J.

NCC 2-531 Carnegie - Mellon University 4837
The generalization of constraint based scheduling theories with applications to space telescope observation scheduling
Period *Obligations*
01/01/88-12/31/88 FY88: \$146,149 TOTAL: \$146,149
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, S. F. ARC/Rosenthal, D. A. 22-Computer Science

NAG 1-243 Drexel University 4838
Research on output feedback and modal insensitivity design with optimality
Period *Obligations*
01/01/82-11/30/87 FY88: TOTAL: \$201,585
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yousuff, A. LARC/Price, D. B. 41-Aero Engr

NAG 1-622 Drexel University 4839
Robust controller design via linear quadratic Gaussian (LQG) exact structural reduced modeling
Period *Obligations*
01/01/86-06/30/87 FY88: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yousuff, A. LARC/Juang, J. N. 42-Astro Engr
LARC/Hanks, B. R.

NAG 1-708 Drexel University 4840
Surface interface and structural properties of II VI compounds and their pseudobinary alloys
Period *Obligations*
11/07/86-10/31/89 FY88: \$105,000 TOTAL: \$205,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bose, S. M. LARC/Clark, I. O. 19-Phys Sci, NEC
LARC/Miller, W. E.

NAG 3-736 Drexel University 4841
System studies of optical control of phased array antennas
Period *Obligations*
07/10/86-12/10/87 FY88: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herczfeld, P. R. LERC/Kunath, R. R. 45-Elec Engr
Fischl, R.
Daryoush, A.

NAG 5-909 Drexel University 4842
Stratospheric constituent distributions from balloon borne limb thermal emission measurements
Period *Obligations*
05/01/87-04/30/89 FY88: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Abbas, M. M. GSFC/Kunde, V. G. 31-Atmos Sci
GSFC/Brasunas, J. C.

NAG 8-687 Drexel University 4843
The impact of thermodynamic data on mesoscale precipitation simulations
Period *Obligations*
09/28/87-06/02/88 FY88: \$38,477 TOTAL: \$38,477
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Perkey, D. J. MSFC/Robertson, F. 31-Atmos Sci

NAG 8-714 Drexel University 4844
The impact of thermodynamic data on mesoscale precipitation simulations
Period *Obligations*
05/01/88-05/01/89 FY88: \$64,990 TOTAL: \$64,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Perkey, D. J. MSFC/Robertson, F. 31-Atmos Sci

NAGW 737 Drexel University 4845
Far infrared thermal emission spectroscopy of the stratosphere for measurement of temperature and trace gas distributions
Period *Obligations*
04/01/85-03/31/89 FY88: TOTAL: \$153,897
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Perkey, D. J. HQ-EE/Kurylo, M. J. 31-Atmos Sci
HQ-EE/Margitan, J. J.

NAS 1-18154 Drexel University 4846
Earth radiation budget experiment (ERBE)
Period *Obligations*
09/18/85-09/18/90 FY88: \$65,000 TOTAL: \$244,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
House, F. B. LARC/Cooper, J. E. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NCC 3-84	Drexel University	4847	NAG 9-45	Lehigh University	4855
Optically controlled phased array studies			Shock and thermal history of iron and chondritic meteorites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/30/87-06/30/88	FY88:	TOTAL: \$93,201	04/01/83-04/01/89	FY88: \$99,000	TOTAL: \$581,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herczfeld, P. R.	LERC/Kunath, R. R.	45-Elec Engr	Goldstein, J. I.	JSC/Browne, I. D.	47-Materials Engr
Daryoush, A. S.			Williams, D. B.		
Kam, M.			Sellamuthu, R.		
NCC 3-113	Drexel University	4848	NAS 8-32951	Lehigh University	4856
Fiber optic links for millimeter wave phased array antennas			Experiment for materials processing in space production of large particle size monodisperse latexes		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/14/88-07/14/89	FY88: \$30,000	TOTAL: \$30,000	02/22/78-10/31/88	FY88: \$8,000	TOTAL: \$1,139,162
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Daryoush, A. S.	LERC/Kunath, R. R.	45-Elec Engr	Vanderhoff, J. W.	MSFC/Barnett, B.	51-Biological Sci
				MSFC/Kornfeld, D. M.	
NAG 5-641	Indiana University of Pennsylvania	4849	NAS 8-36286	Lehigh University	4857
Enhancements for the airborne oceanographic lidar			Preparation of styrene latex particles in a rotating reactor		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/15/87-05/14/88	FY88:	TOTAL: \$34,792	11/28/84-03/17/89	FY88: \$99,949	TOTAL: \$257,318
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berry, R. E.	GSFC/Hoge, F. E.	33-Oceanography	Vanderitoff, J. W.	MSFC/Kornfeld, D. M.	43-Chem Engr
			Elaasser, M. S.	MSFC/Snyder, R. S.	
NAG 5-650	Indiana University of Pennsylvania	4850	NCA 2-98	Lehigh University	4858
Enhancements for the airborne oceanographic lidar			H2 and N2 pressure broadening of gaseous CH3D		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/88-06/30/89	FY88: \$4,290	TOTAL: \$4,290	03/01/86-09/01/87	FY88:	TOTAL: \$9,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berry, R. E.	GSFC/Hoge, F. E.	33-Oceanography	Lovejoy, R.	ARC/Chackerian, C.	12-Chemistry
	GSFC/Krabil, W. B.		Chackerian, C., Jr.		
NAG 1-713	Lehigh University	4851	NCA 2-260	Lehigh University	4859
Crack problems in orthotropic plates and nonhomogeneous materials			The generation purification and storage of ozone for laboratory spectroscopic studies		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/01/86-10/31/88	FY88: \$40,000	TOTAL: \$75,000	10/01/87-12/31/87	FY88: \$4,524	TOTAL: \$4,524
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Erdogan, F.	LARC/Bigelow, C. A.	46-Mech Engr	Lovejoy, R. W.	ARC/Chackerian, C.	12-Chemistry
	LARC/Johnson, W. S.				
NAG 1-832	Lehigh University	4852	NCA 2-293	Lehigh University	4860
Embedded function methods for compressible high speed turbulent flow			Infrared intensities of chlorine nitrate		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/88-12/31/88	FY88: \$100,000	TOTAL: \$100,000	04/01/88-03/31/89	FY88: \$7,320	TOTAL: \$7,320
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, J. D.	LARC/Kumar, A.	41-Aero Engr	Lovejoy, R.	ARC/Chackerian, C.	11-Astronomy
	LARC/Rudy, D. H.				
NAG 3-709	Lehigh University	4853	NSG 5386	Lehigh University	4861
Prototype CARS spectrometer using advanced solid state detectors			Mass flow and evolution in close binaries including simultaneous observations of X-ray binaries		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/15/86-09/10/89	FY88: \$60,000	TOTAL: \$180,000	07/01/79-07/31/89	FY88: \$30,000	TOTAL: \$180,186
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thompson, E. D.	LERC/Pitich, N. D.	13-Physics	McCluskey, G. E.	GSFC/Kondo, Y.	11-Astronomy
Deen, M. J.			Kondo, Y.		
NAG 3-771	Lehigh University	4854	NAS 5-28566	Lincoln University - Pa.	4862
Heat transfer in three dimensional turbulent boundary layers			Development of computer-aided medical information management systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/87-01/30/89	FY88: \$40,000	TOTAL: \$80,000	10/01/84-09/23/88	FY88:	TOTAL: \$841,168
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, J. D.	LERC/Simon, F.	41-Aero Engr	Frankowsk, J. W.	GSFC/Alterescu, S.	22-Computer Science
	LERC/Hippensteele, S. A.				

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NCA 5-98 Lincoln University - Pa. 4863
Introduction aero space engineering
Period Obligations
07/01/80-06/30/88 FY88: TOTAL: \$392,888
Prin. Invest. NASA Tech. Officer CASE Category
Williams, W. W. GSFC/Menchan, D. 49-Engr, NEC

NAG 1-849 Pennsylvania State Univ. - Univ. Park 4871
Prediction of forces and moments for flight vehicle control effectors
Period Obligations
02/15/88-02/14/89 FY88: \$80,513 TOTAL: \$80,513
Prin. Invest. NASA Tech. Officer CASE Category
Maughmer, M. D. LARC/Shaugnessy, J. D. 41-Aero Engr

NGT 00-090-020 Lincoln University - Pa. 4864
Lincoln advanced science and engineering reinforcement program laser
Period Obligations
07/01/88-06/30/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
Williams, W. HQ-U/Margolis, M. 49-Engr, NEC

NAG 1-872 Pennsylvania State Univ. - Univ. Park 4872
Supersonic mixing enhancement by vortex bursting for high speed propulsion
Period Obligations
04/01/88-03/31/89 FY88: \$75,000 TOTAL: \$75,000
Prin. Invest. NASA Tech. Officer CASE Category
Settles, G. S. LARC/Northam, G. B. 41-Aero Engr
LARC/Barnwell, D.

NCA 2-202 Pennsylvania College of Optometry 4865
Low vision project
Period Obligations
03/09/87-03/08/89 FY88: \$40,000 TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Whittaker, S. ARC/Fisher, S. 69-Psych, NEC
Higgins, K. ARC/Larimer, J.

NAG 2-481 Pennsylvania State Univ. - Univ. Park 4873
Preflight experiments for rat pituitary gland study of upcoming Cosmos flight
Period Obligations
08/01/87-10/31/88 FY88: \$23,480 TOTAL: \$23,480
Prin. Invest. NASA Tech. Officer CASE Category
Hymer, W. C. ARC/Grindeland, R. E. 56-Medical Sciences

NCC 2-127 Pennsylvania State Univ -hershey Med. 4866
Effect of cerebral-spinal fluid hormonal and ionic composition on salt/water metabolism
Period Obligations
03/01/81-02/28/89 FY88: \$50,814 TOTAL: \$309,590
Prin. Invest. NASA Tech. Officer CASE Category
Severs, W. B. ARC/Keil, L. 51-Biological Sci

NAG 2-484 Pennsylvania State Univ. - Univ. Park 4874
The flow instability associated with a ground vortex
Period Obligations
01/01/87-10/31/88 FY88: \$69,250 TOTAL: \$69,250
Prin. Invest. NASA Tech. Officer CASE Category
Cimbala, J. M. ARC/Margason, R. J. 41-Aero Engr
Billet, M. L.

NGT 00-070-035 Pennsylvania State Univ -hershey Med. 4867
Graduate student researchers underrepresented minority focus program
Period Obligations
08/01/81-07/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Severs, W. B. HQ-XE/Owens, F. C. 12-Chemistry

NAG 3-555 Pennsylvania State Univ. - Univ. Park 4875
3-D flow field in a turbine nozzle and rotor blade rows
Period Obligations
12/01/84-11/27/88 FY88: \$60,000 TOTAL: \$283,328
Prin. Invest. NASA Tech. Officer CASE Category
Lakshminarayana, B. LARC/Povinelli, L. A. 41-Aero Engr
LARC/Schwab, J. R.

NAG 1-652 Pennsylvania State Univ. - Univ. Park 4868
Low cloud investigations for project fire: Island studies of cloud properties, surface radiation, and boundary layer dynamics
Period Obligations
03/07/86-03/06/89 FY88: \$42,000 TOTAL: \$107,364
Prin. Invest. NASA Tech. Officer CASE Category
Fairall, C. W. LARC/McDougal, D. S. 31-Atmos Sci
LARC/Wagner, H. S.

NAG 3-668 Pennsylvania State Univ. - Univ. Park 4876
Kinetics and mechanism of foot formation in hydrocarbon combustion
Period Obligations
01/30/86-01/27/89 FY88: \$25,000 TOTAL: \$86,079
Prin. Invest. NASA Tech. Officer CASE Category
Frenklach, M. LERC/Lezberg, E. A. 12-Chemistry
LERC/Rabinowitz, M. J.

NAG 1-657 Pennsylvania State Univ. - Univ. Park 4869
Reynolds stress closure in jet flows using wave models
Period Obligations
03/01/86-02/28/89 FY88: \$63,092 TOTAL: \$203,872
Prin. Invest. NASA Tech. Officer CASE Category
Morris, P. J. LARC/Seiner, J. M. 41-Aero Engr
LARC/Henderson, W. P.

NAG 3-823 Pennsylvania State Univ. - Univ. Park 4877
Integrated control systems for advanced aircraft analysis simulation and experimentation
Period Obligations
09/25/87-03/31/89 FY88: \$30,000 TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Ray, A. LERC/Delaat, J. C. 46-Mech Engr

NAG 1-778 Pennsylvania State Univ. - Univ. Park 4870
A computationally efficient modelling of laminar separation bubbles
Period Obligations
06/04/87-06/03/89 FY88: \$52,113 TOTAL: \$107,195
Prin. Invest. NASA Tech. Officer CASE Category
Maughmer, M. D. LARC/Somers, D. M. 41-Aero Engr

NAG 3-827 Pennsylvania State Univ. - Univ. Park 4878
Ni Al alloys for structural uses
Period Obligations
10/25/87-10/24/88 FY88: \$49,657 TOTAL: \$49,657
Prin. Invest. NASA Tech. Officer CASE Category
Koss, D. A. LERC/Nathal, M. V. 47-Materials Engr

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAG 5-100 Pennsylvania State Univ. - Univ. Park 4879
High angular resolution X-ray and X-ray ultraviolet astronomy observations

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/88	FY88: \$428,373	TOTAL: \$2,469,233
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmie, G. P.	GSFC/Early, L. J.	11-Astronomy
	GSFC/Pless, R. H.	

NAG 5-798 Pennsylvania State Univ. - Univ. Park 4887
Advanced data structure for the interpretation of image and cartographic data

<i>Period</i>	<i>Obligations</i>	
07/01/86-10/31/88	FY88:	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peuquet, D. J.	GSFC/Campbell, W. J.	22-Computer Science
	GSFC/Short, N., Jr.	

NAG 5-303 Pennsylvania State Univ. - Univ. Park 4880
Atmospheric collisional broadening motional narrowing and shifting

<i>Period</i>	<i>Obligations</i>	
03/15/83-12/31/88	FY88: \$8,400	TOTAL: \$181,008
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herman, R. H.	GSFC/Susskind, J.	31-Atmos Sci

NAG 5-810 Pennsylvania State Univ. - Univ. Park 4888
Investigation of mass transfer in a selected binary

<i>Period</i>	<i>Obligations</i>	
07/15/86-01/14/88	FY88:	TOTAL: \$10,443
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huenemoerder, D. P.	GSFC/Kondo, Y.	11-Astronomy

NAG 5-361 Pennsylvania State Univ. - Univ. Park 4881
Photometry of diffuse sources with wide-field cameras

<i>Period</i>	<i>Obligations</i>	
08/15/83-05/31/89	FY88: \$30,590	TOTAL: \$127,867
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Usher, P. D.	GSFC/Klinglesmith, D. A.	11-Astronomy
	GSFC/Klinglesmith, D. A.	

NAG 5-919 Pennsylvania State Univ. - Univ. Park 4889
Evaluation and improvement of a method for estimating soil moisture from infrared satellite surface temperature measurements

<i>Period</i>	<i>Obligations</i>	
06/15/87-06/14/89	FY88: \$88,000	TOTAL: \$134,525
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carlson, T. N.	GSFC/Oseroff, H.	19-Phys Sci, NEC

NAG 5-563 Pennsylvania State Univ. - Univ. Park 4882
Coordinated observations of rational modulation in long period binary systems

<i>Period</i>	<i>Obligations</i>	
07/01/85-09/30/89	FY88: \$17,800	TOTAL: \$44,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramsey, L. W.	GSFC/Kondo, Y.	11-Astronomy
Barden, S. C.		

NAG 5-941 Pennsylvania State Univ. - Univ. Park 4890
Analysis of soft diffuse X ray emission data

<i>Period</i>	<i>Obligations</i>	
07/01/87-10/31/88	FY88:	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	GSFC/Bullock, G. D.	19-Phys Sci, NEC

NAG 5-590 Pennsylvania State Univ. - Univ. Park 4883
Research relative and the surface brightness of special galaxies

<i>Period</i>	<i>Obligations</i>	
07/15/85-08/14/87	FY88:	TOTAL: \$23,689
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weedman, D.	GSFC/Kondo, Y.	11-Astronomy

NAG 5-997 Pennsylvania State Univ. - Univ. Park 4891
Rapid overlay of multisource spatial data

<i>Period</i>	<i>Obligations</i>	
09/01/87-12/31/88	FY88:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peuquet, D. J.	GSFC/McDonald, K. R.	22-Computer Science
	GSFC/Campbell, W. J.	

NAG 5-606 Pennsylvania State Univ. - Univ. Park 4884
Stratospheric studies by satellite, rocket and balloon observations

<i>Period</i>	<i>Obligations</i>	
05/15/82-04/30/87	FY88:	TOTAL: \$107,029
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Olivero, J. J.	GSFC/Schmidlin, F. J.	31-Atmos Sci

NAG 6-7 Pennsylvania State Univ. - Univ. Park 4892
Investigate the influence of auroral energetic and electrodynamic coupling on middle atmosphere parameters

<i>Period</i>	<i>Obligations</i>	
09/01/80-11/30/88	FY88:	TOTAL: \$465,460
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mitchell, J. D.	GSFC/Early, L. J.	19-Phys Sci, NEC
Maynard, N. C.	GSFC/Pless, R. H.	
Goldberg, R. A.		

NAG 5-643 Pennsylvania State Univ. - Univ. Park 4885
Optimization of balloon film toughness

<i>Period</i>	<i>Obligations</i>	
04/01/87-09/30/89	FY88: \$274,972	TOTAL: \$422,276
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harrison, I. R.	GSFC/Smith, I. S.	99-Multi-Discip
Hunt, J. P.	GSFC/Needleman, H. C.	

NAG 8-561 Pennsylvania State Univ. - Univ. Park 4893
An X-ray cataclysmic variable with an early type companion

<i>Period</i>	<i>Obligations</i>	
01/01/86-09/30/87	FY88:	TOTAL: \$14,986
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nousek, J. A.	MSFC/Dorries, A. M.	11-Astronomy

NAG 5-644 Pennsylvania State Univ. - Univ. Park 4886
Development of an understanding of balloon film sealing from a materials prospective

<i>Period</i>	<i>Obligations</i>	
04/01/87-05/31/88	FY88:	TOTAL: \$93,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hunt, J. P.	GSFC/Smith, I. S.	99-Multi-Discip
	GSFC/Needleman, H. C.	

NAG 8-601 Pennsylvania State Univ. - Univ. Park 4894
Search for shadowing by the SMC

<i>Period</i>	<i>Obligations</i>	
07/01/86-06/30/89	FY88:	TOTAL: \$19,612
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burrows, D.	MSFC/Potter, P. V.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAG 8-607 Pennsylvania State Univ. - Univ. Park 4895
Einstein observations of the chameleon I star forming cloud
Period *Obligations*
10/01/86-09/30/87 FY88: TOTAL: \$10,734
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feigelson, E. D. MSFC/Potter, P. Y. 11-Astronomy

NAG 8-672 Pennsylvania State Univ. - Univ. Park 4896
X ray and IR emission of AGNS
Period *Obligations*
09/01/87-03/01/89 FY88: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meszaros, P. I. MSFC/Harper, B. 11-Astronomy

NAG 9-118 Pennsylvania State Univ. - Univ. Park 4897
Vection induced gastric dysrhythmias in motion sickness
Period *Obligations*
05/01/85-11/01/88 FY88: TOTAL: \$295,176
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Koch, K. JSC/Kutyna, F. A. 56-Medical Sciences

NAGW 994 Pennsylvania State Univ. - Univ. Park 4898
Interaction of a coastal front and development cyclones using land and ocean surface data as well as atmospheric
Period *Obligations*
11/01/86-10/30/88 FY88: \$67,982 TOTAL: \$130,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warner, T. T. HQ-EE/Miller, T. L. 31-Atmos Sci
HQ-EE/Tuyahov, A. J.

NAGW 1042 Pennsylvania State Univ. - Univ. Park 4899
Synoptic analysis of ice melts
Period *Obligations*
01/01/87-12/31/88 FY88: \$42,110 TOTAL: \$84,210
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crane, R. G. HQ-EE/Thomas, R. H. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1196 Pennsylvania State Univ. - Univ. Park 4900
A center for the commercial development of space
Period *Obligations*
10/01/87-10/31/88 FY88: \$1,069,800 TOTAL: \$1,069,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hymer, W. HQ-IC/Oran, W. A. 99-Multi-Discip
Maestro, A. HQ-IC/Brown, J. A.

NAGW 1302 Pennsylvania State Univ. - Univ. Park 4901
Interim support for microwave measurements of mesospheric water vapor at Penn State
Period *Obligations*
03/01/88-09/30/88 FY88: \$34,041 TOTAL: \$34,041
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Olivero, J. HQ-EE/Kurylo, M. J. 31-Atmos Sci
Croskey, C. HQ-EE/Watson, R. T.

NAGW 1356 Pennsylvania State Univ. - Univ. Park 4902
NASA center for space propulsion engineering a university space engineering research center
Period *Obligations*
06/01/88-02/28/89 FY88: \$500,000 TOTAL: \$500,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Merkle, C. L. HQ-RS/Hartman, S. C. 49-Engr, NEC

NAGW 1430 Pennsylvania State Univ. - Univ. Park 4903
A proposal for computer equipment
Period *Obligations*
02/01/88-01/31/89 FY88: \$200,000 TOTAL: \$200,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warner, T. T. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC

NAGW 1434 Pennsylvania State Univ. - Univ. Park 4904
Predictability of a coupled atmosphere-ocean system
Period *Obligations*
08/15/88-08/19/89 FY88: \$13,554 TOTAL: \$13,554
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dutton, J. A. HQ-EE/Kakar, R. K. 31-Atmos Sci
HQ-EE/Theon, J. S.

NAG10-39 Pennsylvania State Univ. - Univ. Park 4905
Mechanism of differential growth in plants
Period *Obligations*
11/01/86-10/30/88 FY88: \$50,000 TOTAL: \$93,607
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cosgrove, D. J. KSC/Knott, W. 39-Env Sci, NEC

NAS 5-30507 Pennsylvania State Univ. - Univ. Park 4906
Soil moisture determination from infrared flux measurements
Period *Obligations*
01/07/88-05/05/88 FY88: \$44,475 TOTAL: \$44,475
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carlson, T. N. GSFC/Oseroff, H. 19-Phys Sci, NEC

NAS 8-36150 Pennsylvania State Univ. - Univ. Park 4907
The utilization of satellite data and dynamics in understanding global weather
Period *Obligations*
11/05/84-01/18/88 FY88: \$54,607 TOTAL: \$501,833
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clark, J. H. MSFC/Kaufman, J. W. 31-Atmos Sci
Dutton, J. A. MSFC/Fichtl, G. H.

NAS 8-36194 Pennsylvania State Univ. - Univ. Park 4908
Research study entitled infrared back scattering properties of the atmospheric aerosol: Variations in time and space
Period *Obligations*
03/27/85-08/31/89 FY88: TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bohren, C. F. MSFC/Alexander, M. B. 19-Phys Sci, NEC
MSFC/Fitzjarrald, D. E.

NAS 8-36749 Pennsylvania State Univ. - Univ. Park 4909
AXAF CCD imaging spectrometer (ACIS)
Period *Obligations*
01/15/86-12/31/88 FY88: \$1,243,000 TOTAL: \$3,633,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garmire, G. P. MSFC/Cummings, N. P. 11-Astronomy

NAS 9-17416 Pennsylvania State Univ. - Univ. Park 4910
Study to develop new continuous flow electrophoresis flight experiments to repeat the pituitary cell separation and hormone secretion experiments conducted on STS 8
Period *Obligations*
12/01/84-11/30/88 FY88: \$65,900 TOTAL: \$400,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hymer, W. JSC/Morrison, D. 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAS 9-17431 Pennsylvania State Univ. - Univ. Park 4911
Kidney cell electrophoresis in microgravity
Period *Obligations*
05/01/85-02/01/89 FY88: \$64,900 TOTAL: \$221,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Todd, P. JSC/Morrison, D. 59-Life Sci, NEC

NCC 2-316 Pennsylvania State Univ. - Univ. Park 4919
Radiative dynamic feedback studies for atmospheric particulates
Period *Obligations*
08/15/84-10/14/87 FY88: TOTAL: \$184,520
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carlson, T. N. ARC/Toon, O. B. 31-Atmos Sci

NCA 2-49 Pennsylvania State Univ. - Univ. Park 4912
Exploratory experiments on the shock wave vortex interaction phenomenon joint interchange
Period *Obligations*
06/01/85-05/31/87 FY88: TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Settles, G. S. ARC/Horstman, C. C. 46-Mech Engr

NCC 2-370 Pennsylvania State Univ. - Univ. Park 4920
Microgravity induced effect on pituitary growth hormone cell function: A mechanism for muscle atrophy in manned space flight
Period *Obligations*
08/01/85-10/31/88 FY88: \$50,000 TOTAL: \$212,230
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hymmer, W. C. ARC/Winget, C. M. 51-Biological Sci
Grindeland, R. E. ARC/Ballard, R. W.
Morrison, D. R.

NCA 2-100 Pennsylvania State Univ. - Univ. Park 4913
Generation of solution adaptive three-dimensional computational grids using optimization
Period *Obligations*
03/01/86-08/31/88 FY88: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dulikravich, G. S. ARC/Mehta, U. B. 41-Aero Engr

NCC 2-489 Pennsylvania State Univ. - Univ. Park 4921
The effects of desert dust and forest fire smoke on atmospheric circulations and local climate
Period *Obligations*
09/01/87-08/31/88 FY88: TOTAL: \$64,825
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carlson, T. N. ARC/Toon, O. B. 31-Atmos Sci

NCA 2-120 Pennsylvania State Univ. - Univ. Park 4914
Physical modeling and computations of hypersonic flows
Period *Obligations*
04/01/86-03/31/88 FY88: TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dulikravich, G. S. ARC/Feiereisen, W. J. 41-Aero Engr

NCC 3-51 Pennsylvania State Univ. - Univ. Park 4922
Structures of premixed turbulent flames
Period *Obligations*
06/15/85-10/29/88 FY88: \$20,441 TOTAL: \$59,204
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Santavicca, D. A. LERC/Bulzan, D. L. 46-Mech Engr

NCA 2-192 Pennsylvania State Univ. - Univ. Park 4915
An exploratory study of the secondary separation phenomenon in swept shock wave boundary layer interactions
Period *Obligations*
01/15/87-01/14/89 FY88: \$40,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Settles, G. S. ARC/Horstman, C. C. 46-Mech Engr

NGL 39-009-003 Pennsylvania State Univ. - Univ. Park 4923
Research on electron densities in upper ionosphere, including studies of rocket and separating capsule experimental techniques
Period *Obligations*
03/01/61-06/30/88 FY88: TOTAL: \$3,307,767
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nisbet, J. S. HQ-EE/Theiss, H. L. 13-Physics
HQ-EE/Eastman, T. E.

NCA 2-235 Pennsylvania State Univ. - Univ. Park 4916
Supersonic vortex bursting
Period *Obligations*
07/01/87-06/30/89 FY88: \$40,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Settles, G. S. ARC/Horstman, C. C. 46-Mech Engr

NGT 00-050-003 Pennsylvania State Univ. - Univ. Park 4924
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$53,676
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morris, P. J. HQ-XE/Owens, F. C. 41-Aero Engr

NCA 2-291 Pennsylvania State Univ. - Univ. Park 4917
Computational fluid dynamics of heart valves
Period *Obligations*
02/01/88-01/31/90 FY88: \$33,966 TOTAL: \$33,966
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Abdallah, S. ARC/Kwak, D. 41-Aero Engr

NGT 00-050-135 Pennsylvania State Univ. - Univ. Park 4925
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/88 FY88: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dulikravich, G. S. HQ-XE/Owens, F. C. 41-Aero Engr

NCA 2-335 Pennsylvania State Univ. - Univ. Park 4918
Intercomparison of aircraft data and model results for mid-latitude cirrus clouds
Period *Obligations*
06/01/88-04/30/89 FY88: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ackerman, T. P. ARC/Pollack, J. B. 11-Astronomy
ARC/Valero, F. P.

NGT 00-050-265 Pennsylvania State Univ. - Univ. Park 4926
NASA graduate student researchers program
Period *Obligations*
09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Koopmann, G. H. HQ-XE/Owens, F. C. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NGT 00-050-282 Pennsylvania State Univ. - Univ. Park 4927
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peterson, G. W.	HQ-EE/Wickland, D. E.	39-Env Sci, NEC
Jarvis, C.	HQ-EE/Ruzek, M.	

NSG 6004 Pennsylvania State Univ. - Univ. Park 4935
Studies of mesospheric ionization

<i>Period</i>	<i>Obligations</i>	
10/01/75-12/31/88	FY88: \$80,000	TOTAL: \$1,002,664
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hale, L. C.	GSFC/Early, L. J.	19-Phys Sci, NEC
	GSFC/Pless, R. H.	

NGT 00-050-309 Pennsylvania State Univ. - Univ. Park 4928
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$17,953	TOTAL: \$17,953
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	HQ-XE/Owens, F. C.	11-Astronomy

NAG 9-133 Thomas Jefferson University 4936
Maintenance of muscle strength in human crew members during space flight

<i>Period</i>	<i>Obligations</i>	
04/01/86-10/01/88	FY88:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herbison, G. J.	JSC/Logan, J. S.	56-Medical Sciences
Jaweed, M. M.	JSC/Carney, J. H.	

NGT 00-050-341 Pennsylvania State Univ. - Univ. Park 4929
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maughmer, M. D.	HQ-XE/Owens, F. C.	41-Aero Engr

NAG 2-426 University of Pennsylvania 4937
Human factors simulation research

<i>Period</i>	<i>Obligations</i>	
10/01/86-09/30/88	FY88: \$120,000	TOTAL: \$241,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Badler, N.	ARC/Hartzell, E. J.	69-Psych, NEC

NGT 00-070-044 Pennsylvania State Univ. - Univ. Park 4930
Graduate student researchers underrepresented minority focus program

<i>Period</i>	<i>Obligations</i>	
09/01/87-08/31/89	FY88: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, R. B.	HQ-XE/Owens, F. C.	99-Multi-Discip

NAG 3-652 University of Pennsylvania 4938
Integration of chemical reaction systems

<i>Period</i>	<i>Obligations</i>	
08/15/85-10/13/87	FY88:	TOTAL: \$108,928
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Seider, W. D.	LERC/Bittker, D.	12-Chemistry

NGT 39-009-808 Pennsylvania State Univ. - Univ. Park 4931
NASA graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/84-05/31/87	FY88: \$3,966	TOTAL: \$51,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petersen, G. W.	HQ-LB/Owens, F. C.	41-Aero Engr

NAG 5-468 University of Pennsylvania 4939
Binary studies observed with the International Ultraviolet Explorer

<i>Period</i>	<i>Obligations</i>	
09/01/84-10/31/87	FY88:	TOTAL: \$11,545
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Koch, R. H.	GSFC/Kondo, Y.	11-Astronomy

NSG 3264 Pennsylvania State Univ. - Univ. Park 4932
The boundary layer on compressor cascade blades

<i>Period</i>	<i>Obligations</i>	
06/04/79-01/30/89	FY88: \$35,000	TOTAL: \$665,121
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deutsch, S.	LERC/Sanger, N. L.	41-Aero Engr
Zierke, W. C.		

NAG 5-1015 University of Pennsylvania 4940
Selected M type supergiants and bright giants

<i>Period</i>	<i>Obligations</i>	
10/15/87-10/14/88	FY88:	TOTAL: \$3,006
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Koch, R. H.	GSFC/Kondo, Y.	11-Astronomy
Holenstein, B. D.		
Pfeiffer, R. J.		

NSG 3266 Pennsylvania State Univ. - Univ. Park 4933
Three dimensional flow field inside compressor rotor passages, including blade boundary layers

<i>Period</i>	<i>Obligations</i>	
06/26/79-11/27/88	FY88: \$40,700	TOTAL: \$512,691
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr

NAG 5-1045 University of Pennsylvania 4941
Robot learning by exploration and dissimly

<i>Period</i>	<i>Obligations</i>	
05/01/88-04/30/89	FY88: \$90,000	TOTAL: \$90,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bajcsy, R.	GSFC/Premack, T.	49-Engr, NEC

NSG 5205 Pennsylvania State Univ. - Univ. Park 4934
Utilization of satellite data in mesoscale models

<i>Period</i>	<i>Obligations</i>	
09/01/77-09/30/86	FY88:	TOTAL: \$489,758
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Warner, T.	GSFC/Uccellini, L. W.	31-Atmos Sci

NAG 8-611 University of Pennsylvania 4942
Growth of dna crystals in a microgravity environment

<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$54,348	TOTAL: \$109,348
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Voet, D. H.	MSFC/Carter, D. C.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAG 9-154	University of Pennsylvania	4943	Pathophysiology of venous gas embolism		
	<i>Period</i>	<i>Obligations</i>			
	07/01/86-04/01/89	FY88: \$140,825	TOTAL: \$360,886		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Lambertson, C. J.	JSC/Waligora, J. M.	56-Medical Sciences		
	Eckenhoff, R.				
NAG 10-21	University of Pennsylvania	4944	Plant morphogenesis and physiological behavior in relation to gravity		
	<i>Period</i>	<i>Obligations</i>			
	07/09/85-03/31/89	FY88: \$25,539	TOTAL: \$108,859		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Brown, A.	KSC/Knott, W. M.	39-Env Sci, NEC		
NAG 10-25	University of Pennsylvania	4945	Corrosion prevention of iron and steel by means of polyani line coatings		
	<i>Period</i>	<i>Obligations</i>			
	10/01/85-01/15/88	FY88:	TOTAL: \$128,714		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	MacDiarmid, A. G.	KSC/Bryan, C. J.	99-Multi-Discip		
NAS 9-17003	University of Pennsylvania	4946	Laser anthropometric measurement system algorithm development		
	<i>Period</i>	<i>Obligations</i>			
	09/01/83-10/01/88	FY88:	TOTAL: \$322,244		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Altschuler, M. D.	JSC/Woolford, B. J.	29-Math/Computer, NEC		
NAS 9-17238	University of Pennsylvania	4947	Biochemical and hematological evaluation of definition of oxygen tolerance in man		
	<i>Period</i>	<i>Obligations</i>			
	01/01/85-01/01/89	FY88:	TOTAL: \$317,820		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Lambertsen, C. J.	JSC/Waligora, J. M.	59-Life Sci, NEC		
NGT 00-050-063	University of Pennsylvania	4948	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	09/01/86-08/31/88	FY88: \$18,000	TOTAL: \$36,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Badler, N.	HQ-XE/Owens, F. C.	22-Computer Science		
NGT 00-050-066	University of Pennsylvania	4949	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	06/01/86-05/31/89	FY88: \$36,000	TOTAL: \$54,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Finin, T.	HQ-LE/Owens, F. C.	22-Computer Science		
	Balder, N.				
NGT 00-050-139	University of Pennsylvania	4950	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	06/01/87-05/31/89	FY88: \$4,500	TOTAL: \$22,500		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Forsman, W.	HQ-XE/Owens, F. C.	43-Chem Eng		
NGT 39-090-800	University of Pennsylvania	4951	NASA graduate student researchers program		
	<i>Period</i>	<i>Obligations</i>			
	03/01/85-08/31/88	FY88: \$1,000	TOTAL: \$55,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Shen, B.	HQ-LE/Owens, F. C.	19-Phys Sci, NEC		
NAG 2-53	University of Pittsburgh	4952	A survey of nearby stars for the perturbative effects of extrasolar planetary systems		
	<i>Period</i>	<i>Obligations</i>			
	09/01/80-05/31/88	FY88:	TOTAL: \$591,229		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Gatewood, G. D.	ARC/Scargle, J.	11-Astronomy		
	Stein, J. W.	HQ-EL/Black, D. C.			
NAG 3-603	University of Pittsburgh	4953	Low temperature luminescence RBS/channeling of B SIC-CVD films		
	<i>Period</i>	<i>Obligations</i>			
	01/13/85-01/09/89	FY88: \$25,000	TOTAL: \$95,985		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Choyke, W. J.	LERC/Powell, J. A.	13-Physics		
		LERC/Matus, L. G.			
NAG 3-729	University of Pittsburgh	4954	Computer simulation of a pilot in V/STOL aircraft control loops		
	<i>Period</i>	<i>Obligations</i>			
	09/01/86-11/29/88	FY88: \$49,551	TOTAL: \$99,173		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Vogt, W. B.	LERC/Mihaloeuw, J. R.	49-Engr, NEC		
	Mickle, M. H.				
NAG 3-829	University of Pittsburgh	4955	Parallel computations for finite element analysis		
	<i>Period</i>	<i>Obligations</i>			
	11/05/87-11/04/88	FY88: \$28,135	TOTAL: \$28,135		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Smolinski, P.	LERC/Kiraly, L. J.	41-Aero Engr		
NAG 5-609	University of Pittsburgh	4956	Sounding rocket study of N2O, NO, and other trace constituents in the upper stratosphere and mesosphere		
	<i>Period</i>	<i>Obligations</i>			
	07/01/82-12/31/88	FY88:	TOTAL: \$659,752		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Zipf, E. C.	GSFC/Early, L. J.	13-Physics		
	Erdman, P. W.	GSFC/Pless, R. H.			
NAG 6-2	University of Pittsburgh	4957	Studies of the physics and chemistry of the terrestrial atmosphere		
	<i>Period</i>	<i>Obligations</i>			
	10/01/79-05/31/89	FY88:	TOTAL: \$1,098,779		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Zipf, E. C.	GSFC/Early, L. J.	19-Phys Sci, NEC		
		GSFC/Pless, R. H.			
NGT 00-050-1270	University of Pittsburgh	4958	Search for planetary systems		
	<i>Period</i>	<i>Obligations</i>			
	12/01/87-11/30/88	FY88: \$102,000	TOTAL: \$102,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Gatewood, G. D.	HQ-EL/Brnton, H. C.	11-Astronomy		

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NASW 4204 **University of Pittsburgh** **4959**
Operation of a NASA Industrial Applications Center
Period *Obligations*
08/01/86-06/30/88 FY88: \$475,782 TOTAL: \$953,782
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McWilliams, P. A. HQ/Bivins, R. 44-Civil Engr
HQ/Ault, L.

NCA 2-194 **University of Pittsburgh** **4960**
Analysis of infrared astronomical satellite images of nebulae illuminated by hot stars
Period *Obligations*
02/01/87-01/31/88 FY88: TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Castelaz, M. W. ARC/Werner, M. W. 11-Astronomy

NCC 2-393 **University of Pittsburgh** **4961**
Neural and reflexive correlates of otolith and semicircular canal interactions during vertical head movements
Period *Obligations*
02/01/86-01/31/87 FY88: TOTAL: \$51,058
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tomko, D. L. ARC/Dauntton, N. G. 51-Biological Sci
ARC/Corcoran, M. L.

NGL 39-011-030 **University of Pittsburgh** **4962**
Studies of excitation and collision deactivation of measurable A3 state of nitrogen in the aurora and day airglow
Period *Obligations*
05/07/85-10/31/88 FY88: \$80,426 TOTAL: \$1,627,144
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zipf, E. C. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NGR 39-011-137 **University of Pittsburgh** **4963**
Dissociative recombination coefficients for planetary ionospheric ions
Period *Obligations*
07/28/71-11/30/87 FY88: TOTAL: \$561,447
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Biondi, M. A. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NSG 7147 **University of Pittsburgh** **4964**
Photometric analyses of Mariner 10 images of Venus and Mercury
Period *Obligations*
06/23/75-11/30/88 FY88: \$65,000 TOTAL: \$411,397
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hapke, B. HQ-EL/Underwood, J. R. 11-Astronomy
HQ-EL/Boyce, J. M.

NAG 5-343 **Villanova University** **4965**
Ultraviolet observations relative to astronomical sources
Period *Obligations*
07/15/83-09/14/89 FY88: \$3,356 TOTAL: \$126,306
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sion, E. M. GSFC/Kondo, Y. 11-Astronomy
Bruhweiler, F. C.
Vauclair, G.

NAG 5-382 **Villanova University** **4966**
Coordinated ultraviolet spectroscopy and optical photometry of selected cool giants
Period *Obligations*
01/01/84-09/30/89 FY88: \$32,700 TOTAL: \$95,634
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Guinan, E. F. GSFC/Kondo, Y. 11-Astronomy
Maloney, F. P.
Wacker, S. W.

NAG 5-980 **Villanova University** **4967**
Simultaneous IUE and magnetic field observations of a selected young dwarf
Period *Obligations*
09/01/87-08/31/89 FY88: \$15,400 TOTAL: \$21,458
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ambruster, C. GSFC/Kondo, Y. 11-Astronomy

NAG 5-982 **Villanova University** **4968**
Long term variations of chromospheric transition region and starspot activity ultraviolet observations of the unique contact binary VZ piscium
Period *Obligations*
09/01/87-08/31/89 FY88: \$1,000 TOTAL: \$28,542
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Guinan, E. F. GSFC/Kondo, Y. 11-Astronomy
Hrivnak, B. J.
Viuhu, O.

RHODE ISLAND

NAG 1-517 **Brown University** **4969**
Feedback control of distributed continuum models
Period *Obligations*
09/01/84-10/31/88 FY88: \$90,000 TOTAL: \$335,941
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Banks, H. T. LARC/Armstrong, E. S. 21-Mathematics
LARC/Taylor, L. W.

NAG 1-634 **Brown University** **4970**
Concurrent algorithms for transient nonlinear finite element analysis
Period *Obligations*
02/15/86-04/30/89 FY88: \$95,679 TOTAL: \$261,090
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ortiz, M. LARC/Housner, J. M. 46-Mech Engr
LARC/Jeffrey, G. L.

NAG 1-689 **Brown University** **4971**
Problems in fluid dynamics
Period *Obligations*
07/01/86-04/30/87 FY88: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sirovich, L. LARC/Townsend, J. C. 41-Aero Engr
Maxey, M. R. LARC/Dwoyer, D. L.

NAG 1-703 **Brown University** **4972**
Computational fluid dynamics and turbulence
Period *Obligations*
10/15/86-02/28/89 FY88: \$45,000 TOTAL: \$96,280
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gottlieb, D. LARC/Eriebacher, G. 41-Aero Engr
Sirovich, L.

**NASA'S UNIVERSITY PROGRAM
RHODE ISLAND (Continued)**

NAG 3-673	Brown University	4973		NAGW 705	Brown University	4981	
Turbulent shear flows and their control				Planetary impact processes			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
12/15/85-12/29/88	FY88: \$40,000	TOTAL: \$130,000		03/01/85-09/30/88	FY88: \$150,000	TOTAL: \$558,741	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Liu, J. T.	LERC/Rice, E. J.	41-Aero Engr		Schultz, P. H.	HQ-EL/Underwood, J.	32-Geological Sci	
	LERC/Zaman, K. B.				HQ-EL/Boyce, J. M.		
NAG 5-526	Brown University	4974		NAGW 713	Brown University	4982	
Theoretical studies of resource enhance stimulated Raman scattering frequency double laser wavelengths				Venus data analysis of radar images and global data sets			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
07/01/85-07/31/89	FY88: \$60,000	TOTAL: \$217,088		03/01/85-10/31/88	FY88: \$46,572	TOTAL: \$193,571	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lawandy, N. M.	GSFC/Degnan, J. J.	13-Physics		Head, J. W.	HQ-EL/Underwood, J. R.	32-Geological Sci	
	GSFC/Monosmith, W. B.				HQ-EL/Boyce, J. M.		
NAG 9-109	Brown University	4975		NAGW 748	Brown University	4983	
Experimental metamorphic studies of iron sulfide silicate reactions in enstatite chondrites				Reflectance experiment laboratory			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
05/01/85-05/01/89	FY88: \$47,500	TOTAL: \$183,000		05/01/85-10/30/88	FY88: \$62,000	TOTAL: \$210,597	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hess, P. C.	JSC/Browne, I. D.	47-Materials Engr		Pieters, C. M.	HQ-EL/Underwood, J.	32-Geological Sci	
					HQ-EL/Boyce, J. M.		
NAG 9-184	Brown University	4976		NAGW 855	Brown University	4984	
Remote sensing information applied to geological studies of planets				Brown University regional planetary data facility			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
10/01/86-10/01/89	FY88: \$26,000	TOTAL: \$71,000		11/01/85-10/30/88	FY88: \$35,852	TOTAL: \$86,852	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Pieters, C. M.	JSC/Browne, I. D.	32-Geological Sci		Schultz, P. H.	HQ-EL/Underwood, J. R.	32-Geological Sci	
					HQ-EL/French, B. M.		
NAG 9-239	Brown University	4977		NAGW 1075	Brown University	4985	
Role of C o H s volatiles in Mars volcanism experiments on a tholeiite and the FE rich shergotty magma compositions				Mars tectonics and volcanism			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
06/01/87-06/01/88	FY88:	TOTAL: \$55,000		07/01/87-06/30/89	FY88: \$20,000	TOTAL: \$39,989	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Rutherford, M. J.	JSC/Browne, I. D.	32-Geological Sci		Head, J. W.	HQ-EL/Underwood, J. R.	32-Geological Sci	
					HQ-EL/Boyce, J. M.		
NAGW 28	Brown University	4978		NAGW 1076	Brown University	4986	
Remote sensing information applied to geological studies of planets				Volcanic and tectonic history of the Martian highlands			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
02/14/80-11/30/88	FY88: \$96,000	TOTAL: \$886,222		06/01/87-05/31/89	FY88: \$4,000	TOTAL: \$8,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Pieters, C. M.	HQ-EL/Underwood, J.	32-Geological Sci		Schultz, P. H.	HQ-EL/Underwood, J. R.	32-Geological Sci	
	HQ-EL/Boyce, J. M.				HQ-EL/Boyce, J. M.		
NAGW 137	Brown University	4979		NAGW 1118	Brown University	4987	
Geologic processes on the Galilean satellites: Impace cratering, volcanism and tectonism				Volcanism and continental evolution using mapping spectrometer data			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
03/01/81-04/30/89	FY88: \$58,713	TOTAL: \$593,170		04/15/87-04/14/89	FY88: \$103,469	TOTAL: \$173,469	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Head, J. W.	HQ-EL/Underwood, J. R.	32-Geological Sci		Pieters, C. M.	HQ-EE/Baltuck, M.	32-Geological Sci	
	HQ-EL/Boyce, J. M.				HQ-EE/Murphy, R. E.		
NAGW 657	Brown University	4980		NAGW 1393	Brown University	4988	
Quant temperature measurement in laser-heated, diamond-cell experiment				Role of C-O-H-S volatiles in Mars volcanism experiments on basalts evolved magmas and the FE rich Shergotty composition			
<i>Period</i>	<i>Obligations</i>			<i>Period</i>	<i>Obligations</i>		
09/01/84-10/31/88	FY88: \$155,857	TOTAL: \$389,694		06/01/88-05/31/89	FY88: \$65,000	TOTAL: \$65,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Goettel, K. A.	HQ-E/Rosendhal, J. D.	32-Geological Sci		Rutherford, M. J.	HQ-EL/Boyce, J. M.	19-Phys Sci, NEC	
	HQ-EP/Konkel, R. M.						

**NASA'S UNIVERSITY PROGRAM
RHODE ISLAND (Continued)**

NASW 4048	Brown University	4989	Characterization of surface geology using mapping spectrometer data		
<i>Period</i>	<i>Obligations</i>				
01/15/85-04/14/87	FY88:	TOTAL: \$100,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pieters, C. M.	HQ-EE/Mougins, P. J.	32-Geological Sci			
	HQ-EE/Murphy, R. E.				
NSG 7570	Brown University	4997	Surface processes on Mars and its satellites with emphasis on cratering, volcanism and the evolution of Valles Marineris		
<i>Period</i>	<i>Obligations</i>				
04/01/79-09/30/88	FY88: \$100,698	TOTAL: \$761,828			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Head, J. W.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NGR 40-002-088	Brown University	4990	Analysis of Martian geologic features of Earth analogs		
<i>Period</i>	<i>Obligations</i>				
10/20/69-11/30/88	FY88: \$114,865	TOTAL: \$1,860,194			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Head, J. W.	HQ-EL/Underwood, J.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NGR 40-002-116	Brown University	4991	Lunar basins processes and structure		
<i>Period</i>	<i>Obligations</i>				
02/20/73-01/31/89	FY88: \$127,478	TOTAL: \$1,333,289			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Head, J. W.	HQ-EL/Underwood, J.	32-Geological Sci			
	HQ-EL/French, B. M.				
NGT 00-050-146	Brown University	4992	NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>				
05/01/87-04/30/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lawady, N.	HQ-XE/Owens, F. C.	13-Physics			
NGT 00-050-147	Brown University	4993	NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>				
06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Head, J. W.	HQ-XE/Owens, F. C.	32-Geological Sci			
NGT 00-050-229	Brown University	4994	NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>				
07/01/87-06/30/89	FY88: \$36,000	TOTAL: \$36,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rutherford, M. J.	HQ-XE/Owens, F. C.	32-Geological Sci			
NGT 00-050-325	Brown University	4995	NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>				
09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schultz, P. H.	HQ-XE/Owens, F. C.	32-Geological Sci			
NGT 40-002-801	Brown University	4996	NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>				
09/01/85-05/03/87	FY88:	TOTAL: \$13,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Su, C. H.	HQ-LE/Owens, F. C.	21-Mathematics			
NSG 7589	Brown University	4998	Experimental investigation of basalt-C-O-H-S gas equilibria and fumarolic alteration on Mars		
<i>Period</i>	<i>Obligations</i>				
03/01/79-11/30/87	FY88:	TOTAL: \$346,856			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rutherford, M. J.	HQ-EL/Boyce, J. M.	32-Geological Sci			
	HQ-EL/French, B. M.				
NSG 7605	Brown University	4999	Endogenic processes affect in the surfaces of Ganymede and Callisto		
<i>Period</i>	<i>Obligations</i>				
05/01/79-02/28/89	FY88:	TOTAL: \$410,976			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Parmentier, E. M.	HQ-EL/Underwood, J. R.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAG 1-519	University of Rhode Island	5000	Fiber optic pressure sensors in skin-friction measurements		
<i>Period</i>	<i>Obligations</i>				
09/01/84-09/14/89	FY88: \$42,492	TOTAL: \$177,478			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cuomo, F. W.	LARC/Zuckerwar, A. J.	13-Physics			
Letcher, S. V.	LARC/Holmes, H. K.				
NAG 5-1052	University of Rhode Island	5001	Denitrification nitrous oxide carbon dioxide and soil moisture dynamics at the landscape level		
<i>Period</i>	<i>Obligations</i>				
06/15/88-06/14/89	FY88: \$27,000	TOTAL: \$27,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Groffman, P.	GSFC/Levine, E.	39-Env Sci, NEC			
Tiedje, J.	GSFC/Hall, F.				
NAGW 858	University of Rhode Island	5002	Objective edge detection in SST fields and a survey of open ocean paired vortices		
<i>Period</i>	<i>Obligations</i>				
04/01/86-03/31/89	FY88: \$197,944	TOTAL: \$476,709			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cornillon, P.	HQ-EE/Yoder, J. A.	33-Oceanography			
Carter, E.	HQ-EE/Wilson, W. S.				
NAGW 1016	University of Rhode Island	5003	The 1987 Gordon conference on origins of life August 17:21 1987		
<i>Period</i>	<i>Obligations</i>				
03/01/87-02/28/88	FY88:	TOTAL: \$10,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ferris, J.	HQ-EB/Rummel, J.	12-Chemistry			
	HQ-EB/Avener, M. M.				
NAGW 1071	University of Rhode Island	5004	To provide support to the Gordon research conference on gravitational effects in materials progresses and living systems		
<i>Period</i>	<i>Obligations</i>				
05/01/87-04/30/88	FY88:	TOTAL: \$25,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cruikshank, A.	HQ-EN/Bullock, A.	31-Atmos Sci			

**NASA'S UNIVERSITY PROGRAM
SOUTH CAROLINA**

SOUTH CAROLINA

NAG 5-793 **Citadel Military College of S C** **5005**
 Photospheric elemented abundances of selected stars
Period *Obligations*
 08/01/86-06/30/87 FY88: TOTAL: \$6,810
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Adelman, S. J. GSFC/Kondo, Y. 11-Astronomy
 Leckrone, D. S.

NAG 5-921 **Citadel Military College of S C** **5006**
 Photographic region elemental analyses
Period *Obligations*
 06/01/87-05/31/90 FY88: TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Adelman, S. J. GSFC/Leckrone, D. S. 11-Astronomy

NAG 1-629 **Clemson University - Clemson** **5007**
 Interface damage growth in composite laminates with interleaves
Period *Obligations*
 01/01/86-08/15/87 FY88: TOTAL: \$76,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Goree, J. G. LARC/O'Brien, T. K. 41-Aero Engr
 LARC/Murri, G. B.

NAG 1-680 **Clemson University - Clemson** **5008**
 Thermoplastic coating of carbon fibers
Period *Obligations*
 05/15/86-11/06/88 FY88: \$70,628 TOTAL: \$132,634
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Edie, D. D. LARC/Baucom, R. M. 43-Chem Engr
 Drews, M. J. LARC/Nelson, J. B.
 Ellison, M. S.

NAG 1-724 **Clemson University - Clemson** **5009**
 Fracture criteria for discontinuous metal matrix composites
Period *Obligations*
 11/17/86-02/16/89 FY88: \$84,402 TOTAL: \$140,616
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rack, H. J. LARC/Brewer, W. D. 47-Materials Engr
 Goree, J. G. LARC/Johnson, W. S.

NAG 1-755 **Clemson University - Clemson** **5010**
 Sufficiency and necessity in reliability modeling
Period *Obligations*
 04/15/87-02/14/89 FY88: \$50,000 TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Geist, R. S. LARC/Bavuso, S. J. 29-Math/Cmputer,NEC
 Smotherman, M. K. LARC/Pitts, F. L.

NAG 1-820 **Clemson University - Clemson** **5011**
 Superconducting wire fabrication
Period *Obligations*
 09/16/87-10/15/88 FY88: TOTAL: \$50,791
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Barron, C. H. LARC/Buckley, J. D. 47-Materials Engr
 Lewis, G. LARC/Byvik, C. E.

NAG 5-632 **Clemson University - Clemson** **5012**
 Experimental and theoretical investigations of high-latitude thermospheric dynamics
Period *Obligations*
 12/12/85-02/11/89 FY88: \$42,003 TOTAL: \$184,203
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Larsen, M. F. GSFC/Early, L. J. 13-Physics
 GSFC/Pless, R. H.

NAG 5-651 **Clemson University - Clemson** **5013**
 An investigation of millimeter-wavelength radar techniques for remote sensing of geophysical atmospheric and oceanographic parameters
Period *Obligations*
 09/01/88-06/30/89 FY88: \$20,472 TOTAL: \$20,472
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ulbrich, C. W. WFC/Parsons, C. L. 45-Elec Engr
 Miller, L. S. WFC/Hayne, G. S.

NAG 8-48 **Clemson University - Clemson** **5014**
 Spin density in gravitation
Period *Obligations*
 06/01/86-05/31/87 FY88: TOTAL: \$21,589
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ray, J. R. MSFC/Smalley, L. 13-Physics
 Burt, P. B. MSFC/Strauss, E. M.

NAS 8-37851 **Clemson University - Clemson** **5015**
 Nonlinear wave plasma interaction study
Period *Obligations*
 09/16/88-09/30/92 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Duncan, L. M. MSFC/Stone, J. F. 13-Physics

NCC 1-93 **Clemson University - Clemson** **5016**
 An in plane shear material property test for composite laminates
Period *Obligations*
 03/04/85-08/07/89 FY88: TOTAL: \$142,620
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kennedy, J. M. LARC/Farley, G. L. 47-Materials Engr
 LARC/Baker, D. J.

NCC 1-127 **Clemson University - Clemson** **5017**
 Mechanical evaluation of through-the-thickness reinforced composite materials
Period *Obligations*
 08/15/88-08/31/89 FY88: \$34,290 TOTAL: \$34,290
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kennedy, J. M. LARC/Farley, G. L. 47-Materials Engr
 LARC/Dexter, H. B.

NCC 1-128 **Clemson University - Clemson** **5018**
 An investigation to determine the producibility of a three-dimension braider and bias direction weaving loom
Period *Obligations*
 08/15/88-12/14/88 FY88: \$27,505 TOTAL: \$27,505
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Huey, C. LARC/Farley, G. L. 47-Materials Engr

NGT 00-050-005 **Clemson University - Clemson** **5019**
 NASA graduate student researchers program
Period *Obligations*
 08/18/86-08/17/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Geist, R. HQ-LE/Owens, F. C. 22-Computer Science
 Smotherma, M.

**NASA'S UNIVERSITY PROGRAM
SOUTH CAROLINA (Continued)**

NGT 00-050-090 **Clemson University - Clemson** **5020**
NASA graduate student researchers program
Period *Obligations*
06/06/86-06/05/89 FY88: \$17,750 TOTAL: \$52,710
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schalkoff, R. J. HQ-LE/Owens, F. C. 22-Computer Science

NAS 5-28741 **University of South Carolina** **5029**
Application of LANDSAT T M images to assess circulation and dispersion
in coastal regions
Period *Obligations*
07/18/85-07/18/88 FY88: TOTAL: \$225,033
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kjerfve, B. GSFC/Oseroff, H. 39-Env Sci, NEC
Jensen, J. R.

NGT 00-070-028 **Clemson University - Clemson** **5021**
Graduate student researchers underrepresented minority focus program
Period *Obligations*
08/18/87-08/17/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grist, R. M. HQ-XE/Owens, F. C. 22-Computer Science
Smotherman, M. K.

NAS13-358 **University of South Carolina** **5030**
Commercial environmental sensitivity index ESI mapping using remote
sensing and GSI technology
Period *Obligations*
08/29/88-09/30/89 FY88: \$155,908 TOTAL: \$155,908
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jensen, J. R. NSTL/Hill, C. L. 39-Env Sci, NEC

NGT 00-070-055 **Clemson University - Clemson** **5022**
NASA graduate student researchers program
Period *Obligations*
08/15/87-01/01/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Britt, C. L. HQ-XE/Owens, F. C. 45-Elec Engr

SOUTH DAKOTA

NGT 41-001-800 **Clemson University - Clemson** **5023**
NASA graduate student researchers program
Period *Obligations*
04/01/83-09/30/89 FY88: TOTAL: \$12,696
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Isgell, J. T. HQ-LB/Owens, F. C. 13-Physics

NAG 1-463 **South Dakota School of Mines & Tech** **5031**
Investigations into the F106 lightning strike environment as functions of
altitude and storm phase
Period *Obligations*
03/15/84-06/14/87 FY88: TOTAL: \$208,112
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helsdon, J. H., Jr. LARC/Crabill, N. L. 31-Atmos Sci
LARC/Pitts, F. L.

NAG 8-646 **Furman University** **5024**
Integrating expert and database management systems for SSME data
analysis
Period *Obligations*
06/15/87-10/15/88 FY88: TOTAL: \$26,683
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Abernethy, K. MSFC/Hill, E. 29-Math/Computer, NEC

NAG 1-542 **South Dakota School of Mines & Tech** **5032**
Modeling and parameterization of horizontally inhomogeneous cloud
radiative properties
Period *Obligations*
12/06/84-03/05/89 FY88: \$63,000 TOTAL: \$167,488
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Welch, R. M. LARC/Wielicki, B. A. 31-Atmos Sci

NAG 9-169 **University of South Carolina** **5025**
Basaltic volcanism and ancient planetary crusts
Period *Obligations*
06/01/86-06/01/89 FY88: \$21,960 TOTAL: \$62,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shervais, J. W. JSC/Browne, I. D. 32-Geological Sci

NAG 5-386 **South Dakota School of Mines & Tech** **5033**
Rain volume estimation over areas using satellite and radar data
Period *Obligations*
01/01/84-12/31/88 FY88: \$50,000 TOTAL: \$373,393
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doneaud, A. A. GSFC/Wu, M. L. 31-Atmos Sci
Vonder Haar, T. H.

NAG 9-187 **University of South Carolina** **5026**
Solid phase change storage material property research
Period *Obligations*
10/08/86-01/01/89 FY88: \$19,989 TOTAL: \$38,799
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morehouse, J. H. JSC/Darcy, E. C. 46-Mech Engr
JSC/Kelly, G. E.

NAG 8-632 **South Dakota School of Mines & Tech** **5034**
A cloud precipitation and electrification modeling effort for COHMEX
Period *Obligations*
05/20/87-05/19/89 FY88: \$90,000 TOTAL: \$175,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Orville, H. MSFC/Robertson, F. R. 31-Atmos Sci
MSFC/Blakeslee, R. J.

NAG 9-231 **University of South Carolina** **5027**
Optimization analyses for the propulsion integrated test article
Period *Obligations*
05/15/87-08/15/87 FY88: TOTAL: \$9,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morehouse, J. H. JSC/Wagner, H. A. 45-Elec Engr

NAG 9-22 **South Dakota School of Mines & Tech** **5035**
Petrologic and stratigraphic studies of planetary regoliths
Period *Obligations*
02/01/82-02/01/89 FY88: \$110,000 TOTAL: \$842,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Papike, J. J. JSC/Browne, I. D. 32-Geological Sci

NAG 9-311 **University of South Carolina** **5028**
Thermal analysis of power subsystem components
Period *Obligations*
06/01/88-06/01/89 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morehouse, J. H. JSC/Wagner, H. A. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
SOUTH DAKOTA (Continued)**

NAS 5-28766 South Dakota State University 5036
Modeling energy flow and nutrients cycle in natural grassland ecosystems w/aid of thematic mapper data
Period Obligations
08/07/85-12/05/89 FY88: TOTAL: \$499,447
Prin. Invest. NASA Tech. Officer CASE Category
Lewis, J. K. GSFC/Oseroff, H. 39-Env Sci, NEC
Miller, L. D. GSFC/Stuart, L.
Parton, W. J., Jr.

NAG 2-492 University of South Dakota 5037
The human computer interface in the modern mission control center
Period Obligations
03/01/88-10/14/88 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Granaas, M. M. ARC/Rhea, D. C. 41-Aero Engr
ARC/Wheaton, D. L.

NAG 8-633 University of South Dakota 5038
Microphysical and electrical structure of small connective systems in the southeastern part of U.S.A.
Period Obligations
05/20/87-05/19/89 FY88: \$60,959 TOTAL: \$120,959
Prin. Invest. NASA Tech. Officer CASE Category
Smith, P. MSFC/Robertson, F. R. 31-Atmos Sci
MSFC/Blakeslee, R. J.

TENNESSEE

NAG 8-25 Fisk University 5039
Thermal characterization of crystals
Period Obligations
07/05/84-06/28/89 FY88: \$171,107 TOTAL: \$607,222
Prin. Invest. NASA Tech. Officer CASE Category
Silberman, E. MSFC/Randall, J. L. 13-Physics
MSFC/Walker, R. J.

NAG 8-113 Fisk University 5040
Growth and characterization of ternary zn CD se and zn CD te single crystals
Period Obligations
08/17/88-08/16/89 FY88: \$150,663 TOTAL: \$150,663
Prin. Invest. NASA Tech. Officer CASE Category
Silberman, E. MSFC/Randall, J. L. 13-Physics
MSFC/Walker, R. J.

NAS 8-36166 Fisk University 5041
U.S. and foreign alloy cross reference data bases
Period Obligations
02/15/85-02/28/89 FY88: \$195,514 TOTAL: \$607,618
Prin. Invest. NASA Tech. Officer CASE Category
Springer, J. M. MSFC/Key, C. F. 22-Computer Science
Morgan, S. H. MSFC/Sams, M. J.

NAS13-370 Middle Tennessee State University 5042
An environmental and archaeological assessment of the Piedras Negras region of Guatemala
Period Obligations
09/28/88-09/30/89 FY88: \$86,681 TOTAL: \$86,681
Prin. Invest. NASA Tech. Officer CASE Category
Fullerton, R. O. NSTL/Sever, T. L. 39-Env Sci, NEC

NAG 1-863 Tennessee State University 5043
Robust control with structured perturbations
Period Obligations
04/01/88-03/31/89 FY88: \$61,154 TOTAL: \$61,154
Prin. Invest. NASA Tech. Officer CASE Category
Keel, L. LARC/Juang, J. N. 42-Astro Engr
LARC/Belvin, W. K.

NAG 8-22 Tennessee State University 5044
Research support for school of engineering and technology
Period Obligations
08/25/83-11/03/88 FY88: TOTAL: \$954,972
Prin. Invest. NASA Tech. Officer CASE Category
Olson, L. H. MSFC/Harwell, R. 41-Aero Engr
Isibor, E. I. MSFC/Nichols, R.

NAG 8-87 Tennessee State University 5045
Wear process in the 440C ball bearings used in the HPOTP of the SSME
Period Obligations
04/09/87-12/23/88 FY88: TOTAL: \$177,913
Prin. Invest. NASA Tech. Officer CASE Category
Chaudhry, D. K. MSFC/Randall, J. L. 19-Phys Sci, NEC
Verna, R. MSFC/Walker, R. J.

NAG 8-101 Tennessee State University 5046
Super plastic forging of Inconel 718
Period Obligations
04/13/88-04/12/89 FY88: \$102,993 TOTAL: \$102,993
Prin. Invest. NASA Tech. Officer CASE Category
McCain, W. S. MSFC/Randall, J. L. 47-Materials Engr
MSFC/Walker, R. J.

NAG 8-111 Tennessee State University 5047
Photometric and spectroscopic study of chromospherically active stars
Period Obligations
06/09/88-06/09/89 FY88: \$153,557 TOTAL: \$153,557
Prin. Invest. NASA Tech. Officer CASE Category
Busby, M. R. MSFC/Randall, J. L. 11-Astronomy
MSFC/Walker, R. J.

NGT 00-050-083 Tennessee Technological University 5048
NASA graduate student researchers program
Period Obligations
09/01/86-07/01/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Carnal, C. JSC/Kutyna, F. A. 45-Elec Engr
Manno, J. E.
Redetzki, H. M.

NGT 00-050-127 Tennessee Technological University 5049
NASA graduate student researchers program
Period Obligations
06/16/87-08/31/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Patil, S. A. HQ-XE/Owens, F. C. 21-Mathematics

NAG 1-844 University of Tennessee - Chattanooga 5050
New interaction theory of vorticity field and solid body with application to wing design or to mechanism of transition and turbulent boundary layer
Period Obligations
02/01/88-01/31/89 FY88: \$50,771 TOTAL: \$50,771
Prin. Invest. NASA Tech. Officer CASE Category
Wu, J. M. LARC/Bobbitt, P. J. 41-Aero Engr
Wu, J. Z.

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NAG 2-494 University of Tennessee - Chattanooga 5051
Regulation of erythropoiesis in rats during space flight
Period *Obligations*
01/01/88-10/31/88 FY88: \$103,000 TOTAL: \$103,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lange, R. D. ARC/Mandel, A. D. 51-Biological Sci
Jones, J. B. ARC/Leon, H. A.
Worthington, R. E.

NAG 3-682 University of Tennessee - Knoxville 5059
High temperature and pressure laser diagnostics for SSME applications
Period *Obligations*
12/28/85-07/27/87 FY88: TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lewis, J. W. LERC/Piltch, N. D. 13-Physics
Few, J. D.

NAG 8-105 University of Tennessee - Chattanooga 5052
Expansion of nickel cadmium battery expert systems capabilities
Period *Obligations*
06/03/88-10/02/89 FY88: \$49,996 TOTAL: \$49,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bykat, A. MSFC/Weeks, D. J. 22-Computer Science

NAG 3-876 University of Tennessee - Knoxville 5060
Containerless growth and physical metallurgy of large single crystals of aluminides
Period *Obligations*
02/28/88-02/27/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oliver, B. F. LERC/Nathal, M. V. 47-Materials Engr
Brooks, C. R.
Bruns, D.

NAG 1-513 University of Tennessee - Knoxville 5053
Flight expert system files for onboard Fault monitoring and diagnosis
Period *Obligations*
08/13/84-08/31/89 FY88: TOTAL: \$445,134
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ali, M. ARC/Abbott, K. H. 99-Multi-Discip
LARC/Schutte, P. C.

NAG 8-542 University of Tennessee - Knoxville 5061
Evaluation and improvement of liquid propellant rocket chugging analysis techniques
Period *Obligations*
09/16/85-12/15/86 FY88: TOTAL: \$64,434
Prin. Invest. *NASA Tech. Officer* *CASE Category*
George, P. E. MSFC/McCay, T. D. 43-Chem Engr

NAG 1-560 University of Tennessee - Knoxville 5054
Development of a flow field visualization device utilizing projected smoke trails
Period *Obligations*
03/01/85-11/30/87 FY88: TOTAL: \$39,658
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steinhoff, J. S. LARC/Kassel, P. C. 49-Engr, NEC

NAG 8-630 University of Tennessee - Knoxville 5062
Integration and interpretation of multisensory data in autonomous robotic time varying inspection and manipulation for space applications
Period *Obligations*
05/01/87-10/31/87 FY88: TOTAL: \$29,848
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Green, W. L. MSFC/Scott, D. R. 49-Engr, NEC
Abidi, M. A. MSFC/Turner, J. R.

NAG 1-747 University of Tennessee - Knoxville 5055
Skin friction measurement and development of an optical sensing system
Period *Obligations*
05/15/87-09/30/88 FY88: TOTAL: \$45,570
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, J. M. LARC/Lawing, P. L. 41-Aero Engr
Vakilii, A. D.

NAG 8-721 University of Tennessee - Knoxville 5063
Development of Fault monitoring and diagnosis expert system for space power distribution systems
Period *Obligations*
06/01/88-05/31/89 FY88: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, S. MSFC/Lollar, L. F. 45-Elec Engr
Ali, M. MSFC/Walls, B.

NAG 1-799 University of Tennessee - Knoxville 5056
Compressible flow solutions over fighter aircraft with canards and forward swept wings
Period *Obligations*
09/01/87-09/30/88 FY88: TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steinhoff, J. S. LARC/Waggoner, E. G. 41-Aero Engr
LARC/Luckring, J. M.

NAG 9-58 University of Tennessee - Knoxville 5064
Petrologic studies of meteorite groups
Period *Obligations*
04/01/83-04/01/89 FY88: \$53,000 TOTAL: \$221,940
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McSween, H. Y. JSC/Browne, I. D. 32-Geological Sci
Misra, K. C.

NAG 1-803 University of Tennessee - Knoxville 5057
Algorithms and software for solving finite element equations on serial and parallel architectures
Period *Obligations*
08/01/87-08/31/88 FY88: TOTAL: \$75,707
Prin. Invest. *NASA Tech. Officer* *CASE Category*
George, J. A. LARC/Knight, N. F. 29-Math/Computer, NEC
LARC/Greene, W. H.

NAG 9-62 University of Tennessee - Knoxville 5065
The evolution of ancient planetary crusts
Period *Obligations*
02/01/83-02/01/89 FY88: \$213,600 TOTAL: \$801,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Taylor, L. A. JSC/Browne, I. D. 32-Geological Sci
Hunter, R.
Shervais, J.

NAG 1-898 University of Tennessee - Knoxville 5058
Compressible flow solutions over swept wing/body configurations with concentrated leading edge vortex sheets
Period *Obligations*
07/18/88-04/17/89 FY88: \$69,990 TOTAL: \$69,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steinhoff, J. S. LARC/Waggoner, E. G. 41-Aero Engr
LARC/Luckring, J. M.

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NAG 9-73 University of Tennessee - Knoxville 5066
Planetary crust/mantle evolution evidenced in kimberlites
Period Obligations
02/01/84-02/09/88 FY88: TOTAL: \$79,000
Prin. Invest. NASA Tech. Officer CASE Category
Taylor, L. A. JSC/Phinney, W. C. 32-Geological Sci
Shervais, J.

NAGW 125 University of Tennessee - Knoxville 5067
Spectroscopy of methane for the atmospheres of the outer planets
Period Obligations
03/01/81-09/30/88 FY88: \$126,476 TOTAL: \$461,634
Prin. Invest. NASA Tech. Officer CASE Category
Fox, K. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 863 University of Tennessee - Knoxville 5068
Nonlinear wave vacillation in the atmosphere
Period Obligations
01/01/86-12/31/88 FY88: \$50,000 TOTAL: \$214,564
Prin. Invest. NASA Tech. Officer CASE Category
Antar, B. N. HQ-EE/Kakar, R. K. 31-Atmos Sci
HQ-EE/Theon, J. S.

NAG10-46 University of Tennessee - Knoxville 5069
Develop a flow solver for general compressible flow by computer modeling
Period Obligations
08/12/88-03/12/89 FY88: \$39,968 TOTAL: \$39,968
Prin. Invest. NASA Tech. Officer CASE Category
Chang, H. KSC/Belton, C. 99-Multi-Discip

NAS 3-25359 University of Tennessee - Knoxville 5070
Outreach definition study thermoacoustic convection heat transfer
Period Obligations
08/01/88-07/31/90 FY88: \$99,452 TOTAL: \$99,452
Prin. Invest. NASA Tech. Officer CASE Category
Parang, M. LERC/Chai, A. 49-Engr, NEC

NAS 8-36220 University of Tennessee - Knoxville 5071
Computational design of an experimental laser powered thruster
Period Obligations
09/09/86-03/08/88 FY88: TOTAL: \$70,000
Prin. Invest. NASA Tech. Officer CASE Category
Jeng, S. MSFC/Esbriidge, R. 19-Phys Sci, NEC
Keefer, D. MSFC/Monk, J.

NAS 8-36555 University of Tennessee - Knoxville 5072
Comprehensive software for Space Shuttle main engine flow analysis
Period Obligations
03/14/86-11/13/88 FY88: TOTAL: \$179,990
Prin. Invest. NASA Tech. Officer CASE Category
Reddy, K. C. MSFC/Holland, R. L. 31-Atmos Sci
MSFC/Costes, N. C.

NAS 8-37129 University of Tennessee - Knoxville 5073
Natural environment analysis
Period Obligations
05/29/87-05/28/90 FY88: \$100,000 TOTAL: \$125,000
Prin. Invest. NASA Tech. Officer CASE Category
Frost, W. MSFC/Jasper, G. L. 31-Atmos Sci

NAS 8-37292 University of Tennessee - Knoxville 5074
Casting and solidification technology investigation
Period Obligations
12/12/86-12/12/90 FY88: \$295,000 TOTAL: \$560,000
Prin. Invest. NASA Tech. Officer CASE Category
Makay, M. H. MSFC/Ruff, R. 47-Materials Engr
Makay, T.

NGT 43-001-807 University of Tennessee - Knoxville 5075
NASA graduate student researchers program
Period Obligations
09/01/85-02/28/89 FY88: \$18,000 TOTAL: \$53,000
Prin. Invest. NASA Tech. Officer CASE Category
Ali, M. HQ-LE/Owens, F. C. 99-Multi-Discip

NGT 43-001-808 University of Tennessee - Knoxville 5076
NASA graduate student researchers program
Period Obligations
06/10/85-06/09/87 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Taylor, L. HQ-LE/Owens, F. C. 32-Geological Sci

NAS 2-11586 University of Tennessee - Memphis 5077
Regulation of erythropoiesis in mice during space flight
Period Obligations
10/01/82-12/31/87 FY88: \$87,000 TOTAL: \$530,800
Prin. Invest. NASA Tech. Officer CASE Category
Lange, R. D. ARC/Schatte, C. L. 51-Biological Sci
ARC/Schmidt, G. K.

NAG 1-549 Vanderbilt University 5078
Studies of rarefied hypersonic flows
Period Obligations
12/01/84-08/31/87 FY88: TOTAL: \$97,447
Prin. Invest. NASA Tech. Officer CASE Category
Potter, J. L. LARC/Moss, J. N. 41-Aero Engr
LARC/Freeman, D. C.

NAG 1-770 Vanderbilt University 5079
Temperature and concentration measurement in a Mach 2 supersonic combustor by excimer pumped vibrational Raman scattering
Period Obligations
05/20/87-11/30/88 FY88: TOTAL: \$59,997
Prin. Invest. NASA Tech. Officer CASE Category
Pitz, R. W. LARC/Wortham, G. B. 41-Aero Engr
Bowling, J. LARC/Jarrett, O.

NAG 1-878 Vanderbilt University 5080
Analysis of aerothermodynamic experiments that may be conducted with tethered satellites
Period Obligations
06/01/88-05/31/89 FY88: \$24,979 TOTAL: \$24,979
Prin. Invest. NASA Tech. Officer CASE Category
Potter, J. L. LARC/Wood, G. M. 49-Engr, NEC

NAG 5-397 Vanderbilt University 5081
Ultraviolet observations of unusually chromospherically active giant
Period Obligations
03/01/84-09/30/89 FY88: \$6,200 TOTAL: \$75,011
Prin. Invest. NASA Tech. Officer CASE Category
Fekel, F. C., Jr. GSFC/Kondo, Y. 11-Astronomy
Simon, T.

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NAG 8-536 Vanderbilt University 5082
Studies of containerless processing of selected Nb based alloys
Period Obligations
07/17/85-07/31/88 FY88: \$52,522 TOTAL: \$212,522
Prin. Invest. NASA Tech. Officer CASE Category
Bayuzick, R. J. MSFC/Robinson, M. B. 21-Mathematics

NAG 8-690 Vanderbilt University 5083
Robot graphic simulation test bed
Period Obligations
09/30/87-09/29/88 FY88: \$100,000 TOTAL: \$199,898
Prin. Invest. NASA Tech. Officer CASE Category
Cook, G. E. MSFC/Fernandez, K. R. 29-Math/Computer, NEC
Johnson, L. E.
Sztipanovits, J.

NAGW 810 Vanderbilt University 5084
The commercial development of space in metallurgical processing
Period Obligations
09/15/85-10/31/88 FY88: \$1,200,000 TOTAL: \$3,708,535
Prin. Invest. NASA Tech. Officer CASE Category
Bayuzik, K. Y. HQ-IC/Oran, W. 47-Materials Engr
Strauss, A. HQ-IC/Brown, J. A.

NAS 8-37744 Vanderbilt University 5085
Analytical and experimental investigation of the feasibility of accelerated lifetime testing of materials exposed to an atomic oxygen beam
Period Obligations
06/22/88-01/21/91 FY88: \$163,000 TOTAL: \$163,000
Prin. Invest. NASA Tech. Officer CASE Category
Albridge, R. G. MSFC/Carruth, M. R. 13-Physics
Tolk, N. H.

NAS 8-37764 Vanderbilt University 5086
Analysis of rolling contact spall life in 440c steel bearing rims
Period Obligations
07/25/88-07/24/90 FY88: \$80,000 TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Hargava, V. B. MSFC/Patterson, H. 41-Aero Engr
MSFC/Parr, R. A.

NGT 00-050-081 Vanderbilt University 5087
NASA graduate student researchers program
Period Obligations
06/01/86-05/31/87 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Stubbs, G. HQ-LE/Owens, F. C. 56-Medical Sciences

NGT 00-050-126 Vanderbilt University 5088
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Haglund, R. F. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-132 Vanderbilt University 5089
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Tolk, N. H. HQ-LE/Owens, F. C. 13-Physics

NGT 00-050-143 Vanderbilt University 5090
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Pitz, R. W. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-263 Vanderbilt University 5091
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Pitz, R. W. HQ-XE/Owens, F. C. 46-Mech Engr

TEXAS

NAGW 734 Baylor University 5092
Mechanisms of gravitropism by primary and lateral roots of higher plants
Period Obligations
04/01/85-02/28/89 FY88: \$25,000 TOTAL: \$65,000
Prin. Invest. NASA Tech. Officer CASE Category
Moore, R. HQ-EB/Halstead, T. W. 51-Biological Sci

NAGW 1041 Baylor University 5093
G effects on plant growth and development
Period Obligations
02/15/87-08/14/88 FY88: TOTAL: \$21,339
Prin. Invest. NASA Tech. Officer CASE Category
Moore, R. HQ-EB/Halstead, T. W. 51-Biological Sci

NAGW 1282 Baylor University 5094
Definition and development of lu sihu measurement sensors which integrate with cosmic dust collection systems
Period Obligations
02/01/88-01/31/89 FY88: \$39,032 TOTAL: \$39,032
Prin. Invest. NASA Tech. Officer CASE Category
Alexander, W. M. HQ-EL/Evans, L. G. 19-Phys Sci, NEC
HQ-EL/Quaide, W. L.

NAGW 1308 Baylor University 5095
Data analysis of giotto dust impact detector
Period Obligations
02/01/88-01/31/89 FY88: \$44,276 TOTAL: \$44,276
Prin. Invest. NASA Tech. Officer CASE Category
Alexander, W. M. HQ-EL/Brinton, H. C. 11-Astronomy

NASW 3577 Baylor University 5096
Development of a dust impact detector system
Period Obligations
06/01/82-11/30/87 FY88: \$1,000 TOTAL: \$194,893
Prin. Invest. NASA Tech. Officer CASE Category
Alexander, W. M. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Brinton, H. C.

NAG 2-289 Baylor College of Medicine 5097
Etiological and countermeasure studies on sensory conflict sickness
Period Obligations
03/01/84-02/28/89 FY88: \$84,000 TOTAL: \$387,000
Prin. Invest. NASA Tech. Officer CASE Category
Igarashi, M. ARC/Daunton, N. G. 51-Biological Sci
ARC/Corcoran, M. L.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 2-342	Baylor College of Medicine	5098	NAG 2-400	Prairie View A&M University	5106
Otoconia calcification process a chick embryo model			Nitrogen transformation and gaseous n emissions in a pasture ecosystem		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/85-12/31/88	FY88: \$9,330	TOTAL: \$78,066	05/01/86-09/30/88	FY88:	TOTAL: \$276,429
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fermin, C. D.	ARC/Ross, M. D.	51-Biological Sci	Brams, E. A.	ARC/Peterson, D. L.	54-Env Biology
Igarashi, M.					
NAG 2-500	Baylor College of Medicine	5099	NAG 9-310	Prairie View A&M University	5107
Regulation of blood volume during space flight			Flow boiling with enhancement devices for cold plate coolant channel design		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/88-10/31/88	FY88: \$35,000	TOTAL: \$35,000	09/01/88-09/01/89	FY88: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alfrey, C. P.	ARC/Mandel, A. D.	51-Biological Sci	Boyd, R. D.	JSC/Parish, R.	13-Physics
Nachtman, R. G.	ARC/Leon, H. A.				
NAG 9-130	Baylor College of Medicine	5100	NAG 9-318	Prairie View A&M University	5108
Physiological monitoring with magnetic resonance imaging			Time-domain microwave imaging for robotic vision applications		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/86-04/01/89	FY88: \$75,000	TOTAL: \$232,700	09/01/88-09/01/89	FY88: \$114,349	TOTAL: \$114,349
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leblanc, A.	JSC/Schneider, V.	56-Medical Sciences	Tolliver, C. L.	JSC/Arndt, G. D.	45-Elec Engr
NAS 9-14662	Baylor College of Medicine	5101	NAS 9-17406	Prairie View A&M University	5109
Influence of the external parameters of space flight on the regulation of blood volume			Products resulting from interations of atomic oxygen with spacecraft materials		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/75-06/01/89	FY88: \$50,000	TOTAL: \$765,000	08/01/85-07/31/89	FY88:	TOTAL: \$194,861
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alfrey, C.	JSC/Huntoon, C. L.	56-Medical Sciences	Wang, F. C.	JSC/Leger, L.	47-Materials Engr
NAS 9-17589	Baylor College of Medicine	5102	NAG 1-516	Rice University	5110
Renal/fluid and electrolyte studies			Optimal flight trajectories in the presence of wind shear		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/86-10/01/89	FY88: \$10,000	TOTAL: \$40,000	08/09/84-09/30/88	FY88: \$77,000	TOTAL: \$282,895
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suki, W.	JSC/Huntoon, C.	56-Medical Sciences	Miele, A.	LARC/Bowles, R. L.	41-Aero Engr
				LARC/Steinmetz, G. G.	
NGT 00-050-225	Baylor College of Medicine	5103	NAG 1-766	Rice University	5111
NASA graduate student researchers program			Efficient algorithms for space station dynamic studies		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/87-05/31/89	FY88: \$17,700	TOTAL: \$35,300	06/01/87-11/30/88	FY88:	TOTAL: \$49,931
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Atassi, M. Z.	HQ-XE/Owens, F. C.	56-Medical Sciences	Spanos, P. D.	LARC/Cooper, P. A.	42-Astro Engr
NAG 9-286	Lamar University	5104	NAG 5-262	Rice University	5112
Assessment of the dynamic response of the space station stinger			High dispersion ultraviolet spectra abundances of carbon, silicon and magnesium in selected galactic regions		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/88-04/01/89	FY88: \$65,325	TOTAL: \$65,325	08/01/82-08/31/89	FY88: \$53,658	TOTAL: \$240,059
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Corder, P.	JSC/Hamilton, D. A.	42-Astro Engr	Dufour, R. J.	GSFC/Kondo, Y.	11-Astronomy
			Mitra, M.		
			Walborn, N. R.		
NAG 9-300	Lamar University	5105	NAG 5-775	Rice University	5113
Assessment of the finite element modelling assumptions relating to the space station photovoltaic array structure			Dynamic Explorer data analysis		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/88-06/01/89	FY88: \$49,000	TOTAL: \$49,000	05/15/86-01/31/89	FY88: \$31,247	TOTAL: \$91,707
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Corder, P. R.	JSC/Chandler, J. A.	46-Mech Engr	Reiff, P.	GSFC/Bullock, G. D.	19-Phys Sci, NEC
				GSFC/Hoffman, R. A.	

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 8-612 **Rice University** **5114**
High temperature studies of levitated liquids
Period *Obligations*
04/01/87-03/31/89 FY88: \$60,000 TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer CASE Category
Margrave, J. L. MSFC/Robinson, M. B. 11-Astronomy

NAGW 379 **Rice University** **5123**
Theoretical study of pulsar magnetospheres
Period *Obligations*
11/01/82-10/31/89 FY88: TOTAL: \$182,573
Prin. Invest. NASA Tech. Officer CASE Category
Michel, F. C. HQ-E/Rosendhal, J. D. 11-Astronomy
HQ-EP/Konkel, R. M.

NAG 9-88 **Rice University** **5115**
Gas-rich materials in carbonaceous chondrites
Period *Obligations*
04/01/84-05/01/89 FY88: \$9,971 TOTAL: \$54,971
Prin. Invest. NASA Tech. Officer CASE Category
Heymann, D. JSC/Browne, I. D. 32-Geological Sci

NAGW 482 **Rice University** **5124**
Three-dimensional structure of the Earth's electromagnetic field
Period *Obligations*
07/01/83-12/31/88 FY88: \$214,963 TOTAL: \$950,737
Prin. Invest. NASA Tech. Officer CASE Category
Hill, T. W. HQ-EE/Butler, D. M. 39-Env Sci, NEC
HQ-EE/Curtis, S. A.

NAG 9-100 **Rice University** **5116**
Origin of the solar system: Isotopic and chemical anomalies
Period *Obligations*
05/01/85-02/04/89 FY88: \$34,997 TOTAL: \$128,486
Prin. Invest. NASA Tech. Officer CASE Category
Clayton, D. D. JSC/Browne, I. D. 11-Astronomy

NAGW 1151 **Rice University** **5125**
A test of the hypothesis of differential rotation in the magnetic field of Jupiter
Period *Obligations*
09/01/87-08/31/88 FY88: TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
Dessler, A. J. HQ-EE/Vinas, A. F. 13-Physics
HQ-EE/Eastman, T. E.

NAG 9-123 **Rice University** **5117**
Imagery and spectroscopy of supernova remnants and other stellar ejected nebulae
Period *Obligations*
08/16/85-02/04/89 FY88: \$24,772 TOTAL: \$73,957
Prin. Invest. NASA Tech. Officer CASE Category
Dufour, R. J. JSC/Parker, R. A. 47-Materials Engr

NAGW 1416 **Rice University** **5126**
The magnetosphere of Uranus data analysis and model calculations
Period *Obligations*
11/01/88-10/31/89 FY88: \$70,000 TOTAL: \$70,000
Prin. Invest. NASA Tech. Officer CASE Category
Dessler, A. J. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Perry, T. W.

NAG 9-207 **Rice University** **5118**
Fundamental studies in mammalian cell culture bioreactor scale up operation and control
Period *Obligations*
03/01/87-03/01/89 FY88: TOTAL: \$55,000
Prin. Invest. NASA Tech. Officer CASE Category
McIntire, I. V. JSC/Wolf, D. 56-Medical Sciences

NAS 5-28764 **Rice University** **5127**
Analysis of Pioneer, Venus and related interplanetary data
Period *Obligations*
07/01/85-02/28/89 FY88: \$50,997 TOTAL: \$217,578
Prin. Invest. NASA Tech. Officer CASE Category
Cloutier, P. GSFC/Taylor, H. A. 31-Atmos Sci
GSFC/Gagnon, B.

NAG 9-208 **Rice University** **5119**
Research on robotics and automation for space applications
Period *Obligations*
03/01/87-03/01/89 FY88: \$120,000 TOTAL: \$220,000
Prin. Invest. NASA Tech. Officer CASE Category
De Figueiredo, R. JSC/Price, C. 41-Aero Engr

NAS 5-29451 **Rice University** **5128**
The Hubble space telescope guaranteed time observation program
Period *Obligations*
09/24/86-05/31/90 FY88: \$99,000 TOTAL: \$178,000
Prin. Invest. NASA Tech. Officer CASE Category
O'dell, C. R. GSFC/Kalinowski, J. K. 42-Astro Engr

NAG 9-209 **Rice University** **5120**
Atomic collision processes relevant to space flight
Period *Obligations*
03/01/87-03/01/89 FY88: TOTAL: \$110,000
Prin. Invest. NASA Tech. Officer CASE Category
Smith, K. A. JSC/Visentine, J. T. 13-Physics

NAS 9-17896 **Rice University** **5129**
Scene definition techniques for space video systems
Period *Obligations*
10/01/87-07/05/88 FY88: TOTAL: \$28,720
Prin. Invest. NASA Tech. Officer CASE Category
De Figueiredo, R. J. JSC/Graham, O. 22-Computer Science

NAG 9-282 **Rice University** **5121**
Deterioration of less common metallic systems in certain environments
Period *Obligations*
04/01/88-04/01/89 FY88: \$81,383 TOTAL: \$81,383
Prin. Invest. NASA Tech. Officer CASE Category
Brotzen, F. R. JSC/Horiuchi, G. K. 47-Materials Engr
McLellan, R. B.

NGL 44-006-012 **Rice University** **5130**
Laboratory development of solar wind heavy-ion mass spectrometer
Period *Obligations*
06/27/84-10/31/88 FY88: \$67,000 TOTAL: \$2,021,376
Prin. Invest. NASA Tech. Officer CASE Category
Freeman, J. W. HQ-EE/Fitzenreiter, R. J. 13-Physics
Voigt, G. H. HQ-EE/Eastman, T. E.
Michel, E. C.

NAG 9-305 **Rice University** **5122**
Sodium in Mercury's exosphere
Period *Obligations*
09/01/88-11/01/88 FY88: \$4,000 TOTAL: \$4,000
Prin. Invest. NASA Tech. Officer CASE Category
Killen, R. M. JSC/Potter, A. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGR 44-006-137	Rice University	5131	NAGW 459	Southern Methodist University	5139
Analysis of data on the magnetotail and solar wind			Planetary interior modeling and tectonic implications		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/29/70-02/28/89	FY88: \$122,000	TOTAL: \$1,195,230	06/01/83-12/31/88	FY88:	TOTAL: \$298,201
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reiff, P. H.	HQ-EE/Vinas, A. F.	13-Physics	Phillips, R. J.	HQ-EL/Underwood, J. R.	32-Geological Sci
	HQ-EE/Eastman, T. E.			HQ-EL/Boyce, J. M.	
NGT 00-050-071	Rice University	5132	NAGW 911	Southern Methodist University	5140
NASA graduate student researchers program			Constraints on lithospheric structure from satellite potential field data Africa and Asia		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/89	FY88: \$32,800	TOTAL: \$46,300	07/01/86-06/30/88	FY88:	TOTAL: \$135,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
De Figueiredo, R.	HQ-LE/Owens, F. C.	45-Elec Engr	Phillips, R. J.	HQ-EE/Battuck, M.	32-Geological Sci
				HQ-EE/Murphy, R. E.	
NGT 00-050-251	Rice University	5133	NAGW 1085	Southern Methodist University	5141
NASA graduate student researchers program			Tectonic evolution of Mars		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/14/87-09/13/89	FY88: \$35,850	TOTAL: \$35,850	05/01/87-04/30/89	FY88: \$55,000	TOTAL: \$110,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haymes, R. C.	HQ-XE/Owens, F. C.	13-Physics	Phillips, R. J.	HQ-EL/Underwood, J. R.	32-Geological Sci
				HQ-EL/Boyce, J. M.	
NGT 00-050-379	Rice University	5134	NAG 1-631	Southwest Texas State University	5142
NASA graduate student researchers program			Trifluoromethyl substituted polyimides		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000	01/15/86-01/14/89	FY88: \$49,523	TOTAL: \$124,390
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
De Figueiredo, R.	HQ-XE/Owens, F. C.	45-Elec Engr	Cassidy, P. E.	LARC/St Clair, A. K.	12-Chemistry
				LARC/Stoakley, D. M.	
NGT 44-006-806	Rice University	5135	NAGW 605	Sul Ross State University	5143
NASA graduate student researchers program			Galelean satellite mapping program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/84-05/31/88	FY88:	TOTAL: \$53,700	03/01/84-10/31/88	FY88: \$2,000	TOTAL: \$25,487
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
De Figueiredo H, R. J.	HQ-LB/Owens, F. C.	45-Elec Engr	Whitford-stark H, J. L.	HQ-EL/Underwood, J. R.	32-Geological Sci
				HQ-EL/Boyce, J. M.	
NGT 44-006-807	Rice University	5136	NAG 1-793	Texas A&M University System	5144
NASA graduate student researchers program			An initial investigation into methods of computing transonic aerodynamic sensitivity coefficients		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/85-05/31/89	FY88: \$15,300	TOTAL: \$56,300	07/01/87-12/31/88	FY88:	TOTAL: \$51,399
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, D. H.	HQ-LE/Owens, F. C.	45-Elec Engr	Carlson, L. A.	LARC/Yates, E. C.	41-Aero Engr
				LARC/Dwoyer, D. L.	
NSG 7043	Rice University	5137	NAG 3-820	Texas A&M University System	5145
Research on planetary atmospheres			Impact of advanced power systems of the evolutionary space station		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/74-12/31/88	FY88: \$62,580	TOTAL: \$721,054	09/15/87-05/31/88	FY88:	TOTAL: \$49,496
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chambertain, J. W.	HQ-EL/Fox, K.	31-Atmos Sci	Peddicoord, K. L.	LERC/Stubbs, R. M.	49-Engr, NEC
	HQ-EL/Quaide, W. L.				
NSG 7386	Rice University	5138	NAS 8-37284	Texas A&M University System	5146
Study of ion-molecule reactions of importance in planetary atmosphere			Tropical pacific moisture variability hs detection synoptic structure and consequences in the general circulation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/77-02/28/89	FY88: \$46,000	TOTAL: \$413,139	12/05/86-12/04/89	FY88: \$100,000	TOTAL: \$209,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stebbins, R. F.	HQ-EL/Fox, K.	31-Atmos Sci	McGuirk, J. P.	MSFC/Kaufman, J. W.	31-Atmos Sci
	HQ-EL/Quaide, W. L.		Thompson, A. H.	MSFC/Fichtl, G. H.	

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 1-344 Texas A&M University 5147
Basic studies in configurational aerodynamics for low speed aircraft
Period Obligations
04/01/83-09/30/87 FY88: TOTAL: \$687,191
Prin. Invest. NASA Tech. Officer CASE Category
Ward, D. T. LARC/Stickle, J. W. 41-Aero Engr
Miley, S. J. LARC/Holmes, B. J.
Ostowari, C.

NAG 1-891 Texas A&M University 5155
Shock wave boundary layer interaction studies for hypersonic inlet applications
Period Obligations
06/15/88-12/14/88 FY88: \$38,000 TOTAL: \$38,000
Prin. Invest. NASA Tech. Officer CASE Category
Lu, F. K. LARC/Weidner, J. P. 41-Aero Engr
Wilson, D. R. LARC/Mackley, E. A.

NAG 1-443 Texas A&M University 5148
An in-situ study in scanning electron microscope (SEM) of delamination in several graphite/epoxy composite material systems
Period Obligations
02/01/84-08/31/87 FY88: TOTAL: \$109,941
Prin. Invest. NASA Tech. Officer CASE Category
Bradley, W. L. LARC/Crews, J. H., Jr. 47-Materials Engr
LARC/Johnston, N. J.

NAG 3-181 Texas A&M University 5156
Compressible and incompressible fluid seals: Influence on rotordynamic response and stability
Period Obligations
06/01/81-04/29/89 FY88: \$230,469 TOTAL: \$1,280,352
Prin. Invest. NASA Tech. Officer CASE Category
Childs, D. W. LERC/Hendricks, R. C. 46-Mech Engr
Nelson, C. C.
Morrison, G.

NAG 1-619 Texas A&M University 5149
Development of a direct inverse 3-D method for applied transonic aerodynamic design and analysis
Period Obligations
10/15/85-07/31/89 FY88: TOTAL: \$128,341
Prin. Invest. NASA Tech. Officer CASE Category
Carlson, L. A. LARC/Campbell, R. L. 41-Aero Engr
LARC/Waggoner, E. G.

NAG 3-354 Texas A&M University 5157
Study of propeller aeroacoustic methodologies
Period Obligations
11/15/82-01/01/89 FY88: \$60,000 TOTAL: \$349,526
Prin. Invest. NASA Tech. Officer CASE Category
Korkan, K. D. LERC/Ditmar, J. H. 41-Aero Engr
LERC/Groeneweg, J. F.

NAG 1-630 Texas A&M University 5150
Rectangular sybsonic jet flowfield study
Period Obligations
01/01/86-03/31/89 FY88: \$54,919 TOTAL: \$163,845
Prin. Invest. NASA Tech. Officer CASE Category
Morrison, G. L. LARC/Seiner, J. M. 41-Aero Engr
LARC/Ponton, M. K.

NAG 3-626 Texas A&M University 5158
Experimental study of performance degradation of a rotating system in the NASA Lewis icing tunnel
Period Obligations
04/25/85-01/31/89 FY88: \$142,934 TOTAL: \$652,934
Prin. Invest. NASA Tech. Officer CASE Category
Korkan, K. D. LERC/Reinmann, J. J. 41-Aero Engr

NAG 1-644 Texas A&M University 5151
Energy dissipation in a rolling aircraft tire
Period Obligations
03/01/86-09/30/88 FY88: TOTAL: \$122,164
Prin. Invest. NASA Tech. Officer CASE Category
Tielking, J. T. LARC/Tanner, J. A. 44-Civil Engr
LARC/Stroud, W. J.

NAG 3-702 Texas A&M University 5159
Measurement of elastic modulus and damping of small size specimens as a function of temperature
Period Obligations
03/01/86-02/26/89 FY88: \$47,000 TOTAL: \$138,465
Prin. Invest. NASA Tech. Officer CASE Category
Wolfenden, A. LERC/Whittenberger, J. D. 47-Materials Engr

NAG 1-659 Texas A&M University 5152
Micromechanics of composite laminate compressive failure
Period Obligations
04/01/86-07/31/89 FY88: \$54,000 TOTAL: \$173,156
Prin. Invest. NASA Tech. Officer CASE Category
Bradley, W. L. LARC/Whitcomb, J. D. 47-Materials Engr
LARC/Harris, C. E.

NAG 3-763 Texas A&M University 5160
Active control of transients rotor vibrations
Period Obligations
01/02/87-02/29/89 FY88: \$39,297 TOTAL: \$58,958
Prin. Invest. NASA Tech. Officer CASE Category
Palazzolo, A. B. LERC/Kascak, A. F. 46-Mech Engr

NAG 1-711 Texas A&M University 5153
The influence on laminate strength of wavy layers
Period Obligations
10/15/86-04/14/89 FY88: \$15,006 TOTAL: \$54,742
Prin. Invest. NASA Tech. Officer CASE Category
Highsmith, A. L. LARC/Whitcomb, J. D. 47-Materials Engr

NAG 3-846 Texas A&M University 5161
Embedded optical sensors for structural materials
Period Obligations
12/10/87-12/09/88 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Taylor, H. F. LERC/Madzsar, G. C. 49-Engr, NEC

NAG 1-781 Texas A&M University 5154
Feasibility of using a compensated variometer on a commercial airliner to measure wind shear
Period Obligations
08/17/87-07/16/88 FY88: TOTAL: \$42,345
Prin. Invest. NASA Tech. Officer CASE Category
Ward, D. T. LARC/Hinton, D. A. 41-Aero Engr
Nicks, O. W. LARC/Oseguera, R. M.

NAG 3-891 Texas A&M University 5162
Cryogenic dampers verification
Period Obligations
04/01/88-03/31/89 FY88: \$98,004 TOTAL: \$98,004
Prin. Invest. NASA Tech. Officer CASE Category
Palazzolo, A. B. LERC/Kascak, A. F. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 5-94	Texas A&M University	5163
Research of altimetry data over trenches and island arcs and convection		
<i>Period</i>	<i>Obligations</i>	
09/01/80-02/28/87	FY88: \$219	TOTAL: \$123,878
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gammon, R. W.	GSFC/Welker, J. E.	32-Geological Sci
	GSFC/Taylor, P. T.	
NAG 5-778	Texas A&M University	5164
Error coding for satellite and space communications		
<i>Period</i>	<i>Obligations</i>	
05/15/86-08/14/87	FY88: \$68,026	TOTAL: \$68,026
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Georghades, C. N.	GSFC/Morakis, J. C.	49-Engr, NEC
	GSFC/Miller, W. H.	
NAG 5-868	Texas A&M University	5165
Large scale climate prediction algorithms test		
<i>Period</i>	<i>Obligations</i>	
02/01/87-02/28/89	FY88: \$75,000	TOTAL: \$151,168
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
North, G. R.	GSFC/Lau, W. K.	31-Atmos Sci
NAG 5-869	Texas A&M University	5166
Statistical research for precipitation in space		
<i>Period</i>	<i>Obligations</i>	
02/01/87-10/15/88	FY88: \$100,000	TOTAL: \$225,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
North, G. R.	GSFC/Bell, T. L.	31-Atmos Sci
NAG 9-115	Texas A&M University	5167
Microwave model predictions and verifications for vegetated terrain		
<i>Period</i>	<i>Obligations</i>	
07/01/85-09/01/88	FY88: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fung, A.	JSC/Pitts, D.	55-Agriculture Sci
NAG 9-121	Texas A&M University	5168
Evaluation of soil surface temperature as affected by soil hydrologic properties		
<i>Period</i>	<i>Obligations</i>	
07/01/85-01/01/88	FY88: \$46,344	TOTAL: \$46,344
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heilman, J. L.	JSC/Pitts, D. E.	55-Agriculture Sci
NAG 9-140	Texas A&M University	5169
A study of material damping		
<i>Period</i>	<i>Obligations</i>	
04/01/86-06/01/88	FY88: \$48,163	TOTAL: \$48,163
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Allen, D. H.	JSC/Holder, B. W.	41-Aero Engr
Harris, C. E.		
Highsmith, A. L.		
NAG 9-142	Texas A&M University	5170
Optimized organic rankine power conversion systems utilizing both nuclear and solar power sources for manned space activities		
<i>Period</i>	<i>Obligations</i>	
04/01/86-01/01/88	FY88: \$101,665	TOTAL: \$101,665
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Best, F. R.	JSC/Kennedy, R. C.	49-Engr, NEC
NAG 9-143	Texas A&M University	5171
Advanced power system protection and incipient Fault detection		
<i>Period</i>	<i>Obligations</i>	
04/01/86-06/01/88	FY88: \$60,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Russell, B. D.	JSC/Hackler, I. M.	45-Elec Engr
NAG 9-148	Texas A&M University	5172
Optimal control of an aerobraking orbital transfer vehicle subject to atmospheric density variations		
<i>Period</i>	<i>Obligations</i>	
04/15/86-09/01/88	FY88: \$6,000	TOTAL: \$45,431
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ward, D. T.	JSC/Whitnah, M. A.	41-Aero Engr
NAG 9-150	Texas A&M University	5173
Single crystal growth and characterization of ilmenite FeO-TiO2 and other Fe Ti O2 compounds		
<i>Period</i>	<i>Obligations</i>	
04/14/86-07/14/88	FY88: \$109,998	TOTAL: \$109,998
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pandey, R. K.	JSC/Williams, R. J.	45-Elec Engr
NAG 9-161	Texas A&M University	5174
Conceptual design for a food production water waste processing and gas regeneration module		
<i>Period</i>	<i>Obligations</i>	
05/15/86-09/01/87	FY88: \$80,006	TOTAL: \$80,006
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nicks, O. W.	JSC/Chullen, C.	51-Biological Sci
NAG 9-173	Texas A&M University	5175
New secondary batteries utilizing electronically conductive polymer cathodes		
<i>Period</i>	<i>Obligations</i>	
09/01/86-02/01/89	FY88: \$39,990	TOTAL: \$71,544
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, C. R.	JSC/Darcy, E.	43-Chem Engr
White, R. E.	JSC/Kelly, G. E.	
NAG 9-177	Texas A&M University	5176
Optimization of the lithium thionyl chloride battery		
<i>Period</i>	<i>Obligations</i>	
09/01/86-02/21/89	FY88: \$35,490	TOTAL: \$60,490
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
White, R. E.	JSC/Darcy, E.	45-Elec Engr
NAG 9-192	Texas A&M University	5177
This grant consists of nine interdisciplinary projects		
<i>Period</i>	<i>Obligations</i>	
01/06/87-12/06/88	FY88: \$562,000	TOTAL: \$562,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, T.	JSC/Henry, M. F.	49-Engr, NEC
NAG 9-194	Texas A&M University	5178
Plume interference studies		
<i>Period</i>	<i>Obligations</i>	
03/01/87-04/01/89	FY88: \$54,272	TOTAL: \$54,272
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D. A.	JSC/Li, C.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 9-251	Texas A&M University	5179	Modification and refurbishment of the general electric integrated waste and water management system		
<i>Period</i>	<i>Obligations</i>				
09/01/87-10/01/88	FY88:	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Peterson, G. P.	JSC/Cullingford, H. S.	43-Chem Engr			
Moses, W. M.					
NAG 9-253	Texas A&M University	5180	Conceptual design for a food production water processing and gas regeneration module		
<i>Period</i>	<i>Obligations</i>				
09/01/87-02/01/89	FY88: \$187,000	TOTAL: \$285,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wolfe, J. C.	JSC/Cullingford, H. S.	59-Life Sci, NEC			
NAG 9-266	Texas A&M University	5181	Hollow cathode plasma wave turbulence experiments		
<i>Period</i>	<i>Obligations</i>				
01/05/88-08/31/88	FY88: \$15,000	TOTAL: \$15,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hite, G.	JSC/McCoy, J. E.	13-Physics			
NAG 9-275	Texas A&M University	5182	Design of an optimal pointing system for space solar dynamics system		
<i>Period</i>	<i>Obligations</i>				
06/01/88-06/01/89	FY88: \$58,354	TOTAL: \$58,354			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Parlos, A. G.	JSC/Sunkel, J. W.	49-Engr, NEC			
NAG 9-276	Texas A&M University	5183	Improving thermal contact conductance through the use of thin metallic coatings		
<i>Period</i>	<i>Obligations</i>				
02/21/88-02/01/89	FY88: \$44,726	TOTAL: \$44,726			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Peterson, G. P.	JSC/Lin, C. H.	46-Mech Engr			
NAG 9-280	Texas A&M University	5184	Failure prediction of thin beryllium sheers used in spacecraft structures		
<i>Period</i>	<i>Obligations</i>				
07/01/88-07/01/89	FY88: \$64,951	TOTAL: \$64,951			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roschke, P. N.	JSC/Castner, W. L.	47-Materials Engr			
NAG 9-283	Texas A&M University	5185	Modern biofuel cells for waste recycling in life support systems		
<i>Period</i>	<i>Obligations</i>				
04/01/88-04/01/89	FY88: \$70,411	TOTAL: \$70,411			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bockris, J. O.	JSC/Price, D. F.	12-Chemistry			
NAG 9-289	Texas A&M University	5186	Electrochemical processing of solid waste		
<i>Period</i>	<i>Obligations</i>				
02/21/88-02/21/89	FY88: \$70,411	TOTAL: \$70,411			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bockris, J. O.	JSC/Thompson, D. R.	12-Chemistry			
NAG 9-303	Texas A&M University	5187	Characterization of slow and fast phase mystagmus		
<i>Period</i>	<i>Obligations</i>				
08/01/88-08/01/89	FY88: \$91,730	TOTAL: \$91,730			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lessard, C. S.	JSC/Kutyna, F. A.	51-Biological Sci			
	JSC/Bungo, M.				
NAGW 651	Texas A&M University	5188	Planetary permafrost		
<i>Period</i>	<i>Obligations</i>				
09/15/84-12/31/87	FY88:	TOTAL: \$54,936			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Anderson, D. M.	HQ-EL/Scott, D. H.	32-Geological Sci			
	HQ-EL/Holt, H. E.				
NAGW 852	Texas A&M University	5189	The use of satellite-derived chlorophyll fields in modeling carbon flux on the southeastern U.S. Continental shelf		
<i>Period</i>	<i>Obligations</i>				
12/01/85-05/31/89	FY88:	TOTAL: \$108,765			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hofmann, E. E.	HQ-EE/Yoder, J. A.	33-Oceanography			
McClain, C. R.	HQ-EE/Wilson, W. S.				
NAGW 1089	Texas A&M University	5190	Silver anniversary celebration of plate tectonics		
<i>Period</i>	<i>Obligations</i>				
04/01/87-06/01/87	FY88:	TOTAL: \$8,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hilde, T. W.	HQ-EE/Flinn, E. A.	19-Phys Sci, NEC			
NAGW 1109	Texas A&M University	5191	Video display hardware for a satellite ocean data analysis system		
<i>Period</i>	<i>Obligations</i>				
06/01/87-05/31/88	FY88:	TOTAL: \$46,902			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nowlin, W. D.	HQ-EE/Richman, J. G.	33-Oceanography			
Klinck, J.	HQ-EE/Wilson, W. S.				
NAGW 1194	Texas A&M University	5192	Resurfacing and tectonism on the satellites of Uranus		
<i>Period</i>	<i>Obligations</i>				
09/15/87-10/31/88	FY88: \$1,083,300	TOTAL: \$1,083,300			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Patton, A.	HQ/Oran, W.	19-Phys Sci, NEC			
Nicks, O.	HQ/Brown, J.				
NAGW 1304	Texas A&M University	5193	Paleomagnetic constraints on crustal motions		
<i>Period</i>	<i>Obligations</i>				
02/01/88-01/31/89	FY88: \$8,000	TOTAL: \$8,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hilde, T. W.	HQ-EE/Flinn, E. A.	32-Geological Sci			
NAS 8-35824	Texas A&M University	5194	Space Shuttle main engine fuel turbopump interstage seal test program		
<i>Period</i>	<i>Obligations</i>				
06/27/84-11/01/88	FY88:	TOTAL: \$277,290			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Childs, D.	MSFC/Campbell, H. M.	46-Mech Engr			
	MSFC/Gross, L. A.				

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 8-36161	Texas A&M University	5195	NGT 00-050-215	Texas A&M University	5203
Labyrinth seals for incompressive fluids			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/27/84-01/31/87	FY88:	TOTAL: \$114,655	06/01/87-05/31/89	FY88: \$18,000	TOTAL: \$35,987
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Rhode, P. L.	MSFC/Garcia, F.	46-Mech Engr	Hossner, L.	HQ-XE/Owens, F. C.	12-Chemistry
Morrison, G. L.	MSFC/Aderhold, H.				
NAS 8-36293	Texas A&M University	5196	NGT 00-050-221	Texas A&M University	5204
Hybrid methods for nonlinear transient rotordynamic analysis			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/17/86-05/31/88	FY88:	TOTAL: \$69,474	06/01/87-08/31/88	FY88:	TOTAL: \$18,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Noah, S. T.	MSFC/Fox, T. A.	46-Mech Engr	Ostowari, C.	HQ-XE/Owens, F. C.	41-Aero Engr
	MSFC/Schutzenhofer, L. A.				
NAS 8-37465	Texas A&M University	5197	NGT 00-050-248	Texas A&M University	5205
Dynamic analysis of nonlinear rotor housing systems			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/21/88-07/21/89	FY88: \$65,420	TOTAL: \$65,420	09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Noah, S. T.	MSFC/Fox, T. H.	42-Astro Engr	Ferrell, M. Z.	HQ-XE/Owens, F. C.	76-Sociology
	MSFC/Jordan, J. D.				
NAS 9-16443	Texas A&M University	5198	NGT 00-050-261	Texas A&M University	5206
Jet exhaust, ice suppression system validation study			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/05/81-01/01/89	FY88: \$75,501	TOTAL: \$369,074	08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Porteiro, J. R.	JSC/Stroughal, G.	49-Engr, NEC	Schapery, R.	HQ-XE/Owens, F. C.	47-Materials Engr
Norton, D. J.					
NAS 9-17320	Texas A&M University	5199	NGT 00-050-262	Texas A&M University	5207
Computer vision and robotics research in space			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/85-09/30/86	FY88:	TOTAL: \$86,772	09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Griswold, N.	JSC/Juday, R.	59-Life Sci, NEC	Allen, D. H.	HQ-XE/Owens, F. C.	41-Aero Engr
NAS 9-17972	Texas A&M University	5200	NGT 00-050-380	Texas A&M University	5208
Payload vibration isolation in space			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/88-06/01/89	FY88: \$82,900	TOTAL: \$82,900	09/01/88-08/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Gerhold, C.	JSC/Rocha, R.	42-Astro Engr	Poston, J.	HQ-XE/Owens, F. C.	13-Physics
Alexandia, R.					
NCC 2-260	Texas A&M University	5201	NGT 00-050-381	Texas A&M University	5209
Development of analytical procedures for helicopter rotor tip aerodynamics			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/83-06/30/88	FY88:	TOTAL: \$51,900	08/01/88-07/31/89	FY88: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Hall, G. F.	ARC/Shockey, G. A.	41-Aero Engr	Carlson, L.	HQ-XE/Owens, F. C.	41-Aero Engr
NGT 00-050-114	Texas A&M University	5202	NGT 00-050-388	Texas A&M University	5210
NASA graduate student researchers program			NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/87-04/30/89	FY88: \$18,000	TOTAL: \$36,000	08/01/87-12/31/89	FY88: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Carlson, L. A.	HQ-LE/Owens, F. C.	41-Aero Engr	Peddicord, K. L.	HQ-XE/Owens, F. C.	49-Engr, NEC
NGT 00-070-011	Texas A&M University	5211	NGT 00-070-011	Texas A&M University	5211
Graduate student researchers underrepresented minority focus program			Graduate student researchers underrepresented minority focus program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/01/87-12/31/88	FY88: \$18,000	TOTAL: \$36,000	01/01/87-12/31/88	FY88: \$18,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category	<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
White, R. E.	HQ-LE/Owens, F. C.	43-Chem Engr	White, R. E.	HQ-LE/Owens, F. C.	43-Chem Engr

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGT 00-070-057	Texas A&M University	5212	Graduate student researchers underrepresented minority focus program		
<i>Period</i>	<i>Obligations</i>				
09/01/87-08/31/88	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
White, R. E.	HQ-XE/Owens, F. C.	43-Chem Engr			
NGT 00-070-082	Texas A&M University	5213	Graduate student researchers underrepresented minority focus program		
<i>Period</i>	<i>Obligations</i>				
06/01/88-05/31/89	FY88: \$18,000	TOTAL: \$18,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Russell, D.	HQ-XE/Owens, F. C.	45-Elec Engr			
NGT 44-001-800	Texas A&M University	5214	Summer faculty fellowship program in engineering systems design		
<i>Period</i>	<i>Obligations</i>				
01/01/80-09/30/88	FY88:	TOTAL: \$1,336,116			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jones, W. B.	HQ-LB/Owens, F. C.	49-Engr, NEC			
NGT 44-001-804	Texas A&M University	5215	NASA graduate student researchers program		
<i>Period</i>	<i>Obligations</i>				
07/01/85-06/30/88	FY88: \$18,000	TOTAL: \$54,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schapery, R. A.	HQ-LE/Owens, F. C.	41-Aero Engr			
NAG 1-691	Texas Christian University	5216	Solar powered alkali metal vapor lasers		
<i>Period</i>	<i>Obligations</i>				
08/01/86-10/31/88	FY88:	TOTAL: \$80,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Blount, C. E.	LARC/Jalufka, N. W.	13-Physics			
	LARC/Conway, E. J.				
NAG 9-174	Texas Southern University	5217	Polarographic and mass spectrometric study of certain species		
<i>Period</i>	<i>Obligations</i>				
09/01/86-08/14/89	FY88: \$121,847	TOTAL: \$232,229			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wilson, R. F.	JSC/Henninger, D. L.	51-Biological Sci			
NAG 9-258	Texas Southern University	5218	Connection with spectroscopic determination of certain arc jet physical parameters		
<i>Period</i>	<i>Obligations</i>				
10/01/87-10/01/88	FY88: \$10,590	TOTAL: \$10,590			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Murty, V. S.	JSC/Goldstein, S. H.	19-Phys Sci, NEC			
NAG 9-299	Texas Southern University	5219	The preparation and study of titanium, zirconium, and hafnium complexes		
<i>Period</i>	<i>Obligations</i>				
06/01/88-06/01/89	FY88: \$96,387	TOTAL: \$96,387			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wilson, B. L.	JSC/McKay, D. S.	12-Chemistry			
NAG 2-403	Texas Tech University	5220	Turbulence chaos and numerical algorithms		
<i>Period</i>	<i>Obligations</i>				
07/01/86-10/31/88	FY88:	TOTAL: \$59,900			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Martin, C. F.	ARC/Chapman, G. T.	29-Math/Computer, NEC			
	ARC/Tobak, M.				
NAG 5-514	Texas Tech University	5221	Determining the spatial extent of African new eastern and central asian desert		
<i>Period</i>	<i>Obligations</i>				
06/15/85-12/14/87	FY88:	TOTAL: \$43,430			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dregne, H. E.	GSFC/Holben, B.	59-Life Sci, NEC			
Tucker, C. J.					
NAG 2-432	University of Houston - Houston	5222	Bifurcation and symmetry		
<i>Period</i>	<i>Obligations</i>				
03/01/87-02/28/89	FY88: \$45,566	TOTAL: \$85,637			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Golubitsky, M.	ARC/Tobak, M.	29-Math/Computer, NEC			
	ARC/Chapman, G. T.				
NAG 2-503	University of Houston - Houston	5223	Theoretical studies of molecular collision		
<i>Period</i>	<i>Obligations</i>				
06/01/88-05/31/89	FY88: \$54,493	TOTAL: \$54,493			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Kouri, D. J.	ARC/Jaffe, R. L.	12-Chemistry			
NAG 3-510	University of Houston - Houston	5224	2 phase flow at zero gravity		
<i>Period</i>	<i>Obligations</i>				
01/02/84-11/27/88	FY88: \$86,651	TOTAL: \$350,464			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dukler, A. E.	LERC/McQuillen, J. B.	43-Chem Engr			
NAG 3-639	University of Houston - Houston	5225	Basic investigations of incompressible elliptic jets		
<i>Period</i>	<i>Obligations</i>				
06/15/85-11/15/88	FY88: \$35,000	TOTAL: \$145,095			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hussain, A. K.	LERC/Rice, E.	41-Aero Engr			
Husain, H. S.	LERC/Zaman, K. B.				
NAG 5-585	University of Houston - Houston	5226	Wilson cycle studies		
<i>Period</i>	<i>Obligations</i>				
07/15/85-07/15/89	FY88: \$2,000	TOTAL: \$31,153			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Burke, K.	GSFC/Welker, J. E.	32-Geological Sci			
NAG 5-739	University of Houston - Houston	5227	Data base interfaces on NASA's heterogeneous distributed data base systems		
<i>Period</i>	<i>Obligations</i>				
02/15/86-12/31/88	FY88:	TOTAL: \$35,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Huang, S. S.	GSFC/Jacobs, B. E.	22-Computer Science			
	GSFC/Berbert, J. H.				

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 8-51 University of Houston - Houston 5228
Microstructures and physical properties of materials prepared in the drop-tube and tower
Period *Obligations*
11/26/85-08/24/87 FY88: TOTAL: \$14,476
Prin. Invest. NASA Tech. Officer CASE Category
Chu, C. W. MSFC/Curreri, P. A. 13-Physics
MSFC/Strauss, E. M.

NAG 9-206 University of Houston - Houston 5236
Invariance in optical processing and synthetic aperture radar simulation
Period *Obligations*
01/15/87-06/15/88 FY88: TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Bourgeois, B. JSC/Juday, R. 49-Engr, NEC

NAG 9-165 University of Houston - Houston 5229
Flow boiling in micro and zero gravity environments
Period *Obligations*
06/01/86-10/01/87 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Eichhorn, R. JSC/Wheelock, C. B. 42-Astro Engr
Lienhard, J. H.

NAG 9-210 University of Houston - Houston 5237
Design of an intelligent learning machine
Period *Obligations*
01/15/87-01/15/89 FY88: \$2,000 TOTAL: \$52,472
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, G. G. JSC/Savely, R. T. 29-Math/Computer, NEC

NAG 9-178 University of Houston - Houston 5230
Analysis of the behavior of solid polymer electrolytes
Period *Obligations*
10/01/86-04/01/89 FY88: \$27,330 TOTAL: \$46,435
Prin. Invest. NASA Tech. Officer CASE Category
Pollard, R. JSC/Darcy, E. 43-Chem Engr
JSC/Kelly, G. E.

NAG 9-211 University of Houston - Houston 5238
Precise computer controlled positioning of robot end effectors
Period *Obligations*
01/01/87-07/01/88 FY88: TOTAL: \$51,339
Prin. Invest. NASA Tech. Officer CASE Category
McInnis, B. C. JSC/Price, C. R. 45-Elec Engr

NAG 9-180 University of Houston - Houston 5231
Surface measurements of Leo atomic oxygen exposed polymers
Period *Obligations*
10/01/86-06/01/88 FY88: TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Ignatiev, A. JSC/Santos-mason, B. 13-Physics

NAG 9-212 University of Houston - Houston 5239
Fine scale traverses in cumulate rocks stillwater complex a lunar analogue study
Period *Obligations*
02/01/87-08/01/88 FY88: TOTAL: \$47,000
Prin. Invest. NASA Tech. Officer CASE Category
Elthon, D. JSC/Phinney, W. C. 32-Geological Sci

NAG 9-195 University of Houston - Houston 5232
Methods and techniques for processing data in a distributed heterogeneous environment
Period *Obligations*
02/01/87-07/01/88 FY88: TOTAL: \$51,914
Prin. Invest. NASA Tech. Officer CASE Category
Rusinkiewicz, M. E. JSC/Gilbert, J. R. 22-Computer Science
Czejdo, B.
Elmasri, R. A.

NAG 9-213 University of Houston - Houston 5240
High altitude ozone with a rocket payload
Period *Obligations*
01/01/87-04/01/89 FY88: \$59,988 TOTAL: \$119,335
Prin. Invest. NASA Tech. Officer CASE Category
Sheldon, W. R. JSC/Robbins, D. E. 31-Atmos Sci

NAG 9-196 University of Houston - Houston 5233
Effect of non rigid material on the dynamics of orbiting bodies
Period *Obligations*
01/19/87-04/18/88 FY88: TOTAL: \$45,743
Prin. Invest. NASA Tech. Officer CASE Category
Casey, J. JSC/Hamilton, D. A. 19-Phys Sci, NEC

NAG 9-214 University of Houston - Houston 5241
Growth of plant tissue cultures in simulated lunar soil implication for a lunar base CELSS
Period *Obligations*
02/01/87-08/01/88 FY88: TOTAL: \$59,382
Prin. Invest. NASA Tech. Officer CASE Category
Venketeswaran, S. JSC/Henninger, D. L. 55-Agriculture Sci

NAG 9-197 University of Houston - Houston 5234
A technology development plan to meet thermal control system requirements in advanced manned space missions
Period *Obligations*
01/15/87-05/01/88 FY88: TOTAL: \$59,997
Prin. Invest. NASA Tech. Officer CASE Category
Bannerot, R. B. JSC/Femis, E. P. 46-Mech Engr

NAG 9-216 University of Houston - Houston 5242
Modelling and prediction of freezing melting with possible sublimation
Period *Obligations*
02/03/87-08/01/88 FY88: TOTAL: \$33,000
Prin. Invest. NASA Tech. Officer CASE Category
Shamsundar, N. JSC/Curry, D. M. 47-Materials Engr

NAG 9-203 University of Houston - Houston 5235
A knowledge based object recognition system for application in the space station
Period *Obligations*
02/01/87-02/01/88 FY88: TOTAL: \$47,884
Prin. Invest. NASA Tech. Officer CASE Category
Dhawan, A. JSC/Heydorn, R. 22-Computer Science

NAG 9-218 University of Houston - Houston 5243
High performance mass spectrometry in space for the characterization and purification of products of biotechnology
Period *Obligations*
06/01/87-04/01/89 FY88: \$60,000 TOTAL: \$118,460
Prin. Invest. NASA Tech. Officer CASE Category
Middleditch, B. S. JSC/Schneider, H. J. 12-Chemistry

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 9-219 University of Houston - Houston 5244
Conformal antennas for the astronaut backpack communication system
Period Obligations
06/01/87-06/01/88 FY88: TOTAL: \$59,733
Prin. Invest. NASA Tech. Officer CASE Category
Long, S. A. JSC/Eggers, D. S. 49-Engr, NEC

NAS 9-16593 University of Houston - Houston 5252
Food service habitat for the space operation center
Period Obligations
03/21/82-04/01/89 FY88: \$15,000 TOTAL: \$170,000
Prin. Invest. NASA Tech. Officer CASE Category
Bell, L. JSC/Santy, P. A. 99-Multi-Discip
Pollette, T.

NAG 9-225 University of Houston - Houston 5245
A new form of medical records for the space flight program
Period Obligations
04/01/87-08/01/88 FY88: TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
Brown, J. H. JSC/Stewart, D. 56-Medical Sciences

NAS 9-17315 University of Houston - Houston 5253
Provide analysis and recommendations to the national space transportation systems program for use in management of its transition from R and D to operations
Period Obligations
01/15/85-04/03/89 FY88: \$98,917 TOTAL: \$394,364
Prin. Invest. NASA Tech. Officer CASE Category
Hunsucker, J. L. JSC/Heselmeyer, R. 99-Multi-Discip

NAG 9-274 University of Houston - Houston 5246
Computer generated feedback mechanisms for orbital antenna pointing
Period Obligations
04/01/88-12/01/88 FY88: \$21,000 TOTAL: \$21,000
Prin. Invest. NASA Tech. Officer CASE Category
Bourgeois, B. JSC/Suddath, J. H. 22-Computer Science

NAS 9-17380 University of Houston - Houston 5254
Numerical flow simulator for electrophoresis separation processes
Period Obligations
05/01/85-09/30/88 FY88: TOTAL: \$50,774
Prin. Invest. NASA Tech. Officer CASE Category
Tezduyar, T. E. JSC/Goodrich, W. 99-Multi-Discip

NAG 9-277 University of Houston - Houston 5247
Applications of high tc superconductor
Period Obligations
04/01/88-04/01/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
Wolfe, J. C. JSC/Krishen, K. 45-Elec Engr

NAS 9-17442 University of Houston - Houston 5255
Pressure decay boiling experiment
Period Obligations
07/01/85-12/31/88 FY88: TOTAL: \$122,139
Prin. Invest. NASA Tech. Officer CASE Category
Lienhard, J. H. JSC/Kroll, K. 43-Chem Engr

NAG 9-284 University of Houston - Houston 5248
Influence of iodine on granulae activated carbon absorption on the formation of iodine by products
Period Obligations
04/01/88-04/01/89 FY88: \$59,440 TOTAL: \$59,440
Prin. Invest. NASA Tech. Officer CASE Category
Symons, J. M. JSC/Sauer, R. L. 44-Civil Engr

NAS 9-17512 University of Houston - Houston 5256
Research atmospheric contaminants
Period Obligations
07/01/85-11/01/88 FY88: TOTAL: \$77,920
Prin. Invest. NASA Tech. Officer CASE Category
Worley, F. JSC/Coleman, M. 31-Atmos Sci

NAGW 439 University of Houston - Houston 5249
Crater formation and obliteration on the Jovian satellites
Period Obligations
03/01/83-11/30/88 FY88: \$16,000 TOTAL: \$138,639
Prin. Invest. NASA Tech. Officer CASE Category
Woronow, A. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NCA 2-112 University of Houston - Houston 5257
Eduction of coherent structures in a turbulent boundary layer
Period Obligations
04/15/86-02/29/88 FY88: TOTAL: \$36,780
Prin. Invest. NASA Tech. Officer CASE Category
Hussain, A. K. ARC/Kim, J. J. 41-Aero Engr
Degani, A. T.

NAGW 977 University of Houston - Houston 5250
Establishment of a center for the commercial development of space
Period Obligations
09/01/86-10/14/88 FY88: \$1,360,000 TOTAL: \$2,468,528
Prin. Invest. NASA Tech. Officer CASE Category
Chu, C. W. HQ-IC/Oran, W. A. 51-Biological Sci
Ignatiev, A. HQ-IC/Brown, J.

NCA 2-317 University of Houston - Houston 5258
Determination of propagation in turbulent shear flow from numerical simulation
Period Obligations
04/15/88-04/14/90 FY88: \$26,904 TOTAL: \$26,904
Prin. Invest. NASA Tech. Officer CASE Category
Hussain, A. K. ARC/Kim, J. 41-Aero Engr

NAS 2-11165 University of Houston - Houston 5251
Additional funding and extension of period of performance
Period Obligations
01/01/82-12/31/87 FY88: TOTAL: \$519,142
Prin. Invest. NASA Tech. Officer CASE Category
Cowles, J. R. ARC/Winget, C. M. 59-Life Sci, NEC

NCC 9-12 University of Houston - Houston 5259
Role of blood flow in bone demineralization
Period Obligations
05/01/84-02/01/88 FY88: TOTAL: \$147,700
Prin. Invest. NASA Tech. Officer CASE Category
Nerem, R. M. JSC/Schneider, V. S. 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGR 44-005-002 University of Houston - Houston 5260
 Studies in organic cosmochemistry, including consideration of compound formation under primitive Earth conditions and of organic material in selected meteorites
Period *Obligations*
 06/18/82-12/31/88 FY88: \$115,583 TOTAL: \$1,934,005
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Oro, J. HQ-EB/Rummel, J. D. 32-Geological Sci
 HQ-EB/Averner, M.

NGT 00-050-026 University of Houston - Houston 5261
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-08/31/87 FY88: TOTAL: \$17,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fox, G. HQ-LE/Owens, F. C. 12-Chemistry

NGT 00-050-069 University of Houston - Houston 5262
 NASA graduate student researchers program
Period *Obligations*
 09/01/86-08/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Allen, R. H. HQ-LE/Owens, F. C. 46-Mech Engr

NGT 00-050-097 University of Houston - Houston 5263
 NASA graduate student researchers program
Period *Obligations*
 08/01/86-07/31/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hussain, A. K. HQ-LE/Owens, F. C. 46-Mech Engr

NGT 00-050-121 University of Houston - Houston 5264
 NASA graduate student researchers program
Period *Obligations*
 09/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Koopmann, G. H. HQ-LE/Owens, F. C. 46-Mech Engr

NGT 00-050-173 University of Houston - Houston 5265
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fox, G. HQ-XE/Counts, J. 12-Chemistry

NGT 00-050-276 University of Houston - Houston 5266
 NASA graduate student researchers program
Period *Obligations*
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lacy, C. E. HQ-XE/Owens, F. C. 21-Mathematics
 Dukler, A. E.

NGT 44-005-803 University of Houston - Houston 5267
 Summer faculty fellowship program
Period *Obligations*
 01/01/84-03/31/89 FY88: \$330,503 TOTAL: \$971,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bannerot, R. B. HQ-XE/McGee, A. S. 49-Engr, NEC
 HQ-XE/Schwartz, E. T.

NGT 44-005-806 University of Houston - Houston 5268
 NASA graduate student researchers program
Period *Obligations*
 04/01/84-03/31/87 FY88: TOTAL: \$62,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hussain, A. K. HQ-LB/Owens, F. C. 46-Mech Engr

NGT 44-005-808 University of Houston - Houston 5269
 NASA graduate student researchers program
Period *Obligations*
 07/01/85-06/30/89 FY88: \$18,000 TOTAL: \$72,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hussain, A. F. HQ-LE/Owens, F. C. 46-Mech Engr

NGT 44-005-809 University of Houston - Houston 5270
 NASA graduate student researchers program
Period *Obligations*
 07/01/85-06/30/89 FY88: \$18,000 TOTAL: \$73,989
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hussain, A. K. HQ-LE/Owens, F. C. 46-Mech Engr

NSG 7440 University of Houston - Houston 5271
 Evolutionary relationships in the microbial world
Period *Obligations*
 06/01/78-11/30/88 FY88: \$62,000 TOTAL: \$599,498
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fox, G. E. HQ-EB/Rummel, J. D. 51-Biological Sci
 HQ-EB/Averner, M.

NAG 9-317 University of Houston - Clear Lake 5272
 Center for minority education for the aerospace industry
Period *Obligations*
 09/15/88-11/14/88 FY88: \$13,500 TOTAL: \$13,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, W. C. JSC/Atkinson, J. D. 19-Phys Sci, NEC
 Sawyer, G. M.

NAS 9-17010 University of Houston - Clear Lake 5273
 ADA software language/architecture study
Period *Obligations*
 10/01/83-09/30/86 FY88: TOTAL: \$1,056,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McKay, C. W. JSC/Garman, J. R. 99-Multi-Discip

NASW 4229 University of Houston - Clear Lake 5274
 Research and write a revised edition of the NASA publication orders of magnitude
Period *Obligations*
 07/29/87-01/31/89 FY88: \$2,100 TOTAL: \$48,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bilstein, R. E. HQ-LB/Fries, S. D. 73-History

NCC 9-16 University of Houston - Clear Lake 5275
 Research institute for computing and information systems
Period *Obligations*
 05/15/86-06/30/89 FY88: \$4,987,739 TOTAL: \$10,025,181
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dickerson, E. T. JSC/MacDonald, R. B. 22-Computer Science
 Houston, A. G. JSC/Garman, J. R.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 5-486 University of Texas - Arlington 5276
Scattering models and basic experiments in the microwave regime
Period *Obligations*
10/15/84-03/31/89 FY88: \$90,000 TOTAL: \$284,726
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fung, A. K. GSFC/Oseroff, H. 55-Agriculture Sci
Blanchard

NAG 2-402 University of Texas - Austin 5284
Cooled far IR and submillimeter heterodyne mixers for airborne and space applications
Period *Obligations*
05/01/86-04/30/89 FY88: \$22,000 TOTAL: \$66,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bash, F. N. ARC/McCreight, C. R. 13-Physics
Jaffe, D. T. ARC/Goebel, J. H.
Genzel, R.

NCC 2-386 University of Texas - Arlington 5277
Analysis of inhomogeneous turbulent flows using large eddy interaction model
Period *Obligations*
01/01/86-12/31/87 FY88: TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Payne, F. R. ARC/Rubetin, M. W. 41-Aero Engr
Hong, S. K. ARC/Marvin, J. G.

NAG 2-419 University of Texas - Austin 5285
High resolution far infrared studies of pre main sequence stars with molecular outflows
Period *Obligations*
10/01/86-09/30/88 FY88: \$23,563 TOTAL: \$48,292
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jaffee, D. T. ARC/Haughney, L. C. 11-Astronomy

NAG 1-556 University of Texas - Austin 5278
A new singular integral method for compressible flow
Period *Obligations*
02/01/85-05/31/87 FY88: TOTAL: \$21,884
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, D. E. LARC/Allison, D. O. 41-Aero Engr
LARC/Barnwell, R. W.

NAG 2-420 University of Texas - Austin 5286
High resolution far infrared studies of pre main sequence stars with molecular out flows
Period *Obligations*
10/01/86-09/30/89 FY88: \$36,968 TOTAL: \$61,323
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Evans, N. J. ARC/Haughney, L. C. 11-Astronomy

NAG 1-610 University of Texas - Austin 5279
The effect of a row of Helmholtz resonators on the turbulence in a boundary layer
Period *Obligations*
09/01/85-01/31/87 FY88: TOTAL: \$58,802
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Panton, R. L. LARC/Anders, J. B. 41-Aero Engr
LARC/Bushnell, D. M.

NAG 2-507 University of Texas - Austin 5287
System monitoring and diagnosis with qualitative models
Period *Obligations*
03/01/88-02/28/89 FY88: \$124,621 TOTAL: \$124,621
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuipers, B. J. ARC/Wong, C. M. 22-Computer Science

NAG 1-721 University of Texas - Austin 5280
Feasibility study of a hypersonic real gas facility
Period *Obligations*
01/01/87-05/31/87 FY88: TOTAL: \$49,318
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gully, J. H. LARC/Scallion, W. I. 45-Elec Engr
Driga, M. D.
Weldon, W. F.

NAG 3-602 University of Texas - Austin 5288
Synthesis of novel high temperature liquid and solid lubricants by direct fluorination
Period *Obligations*
01/15/85-01/12/88 FY88: TOTAL: \$165,008
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lagow, R. J. LERC/Jones, W. R. 12-Chemistry

NAG 2-67 University of Texas - Austin 5281
Density and temperature structure of clouds around low luminosity young stars
Period *Obligations*
09/01/80-01/14/89 FY88: \$317,193 TOTAL: \$1,591,201
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harvey, P. M. ARC/Haughney, L. C. 11-Astronomy

NAG 3-864 University of Texas - Austin 5289
Turbulence modeling for the simulation of transition in wall shear flows
Period *Obligations*
01/05/88-07/04/89 FY88: \$59,905 TOTAL: \$59,905
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crawford, M. E. LERC/Simon, F. F. 49-Engr, NEC

NAG 2-372 University of Texas - Austin 5282
Far-infrared emission line spectroscopy for the Kuiper Airborne Observatory
Period *Obligations*
10/01/85-09/30/89 FY88: \$45,716 TOTAL: \$97,416
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dinerstein, H. L. ARC/Haughney, L. C. 11-Astronomy

NAG 3-921 University of Texas - Austin 5290
Experimental investigation of surface tension driven convection as a feasibility study for a microgravity equipment
Period *Obligations*
07/15/88-07/15/89 FY88: \$49,494 TOTAL: \$49,494
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Koschmieder, E. L. LERC/Salzman, J. A. 44-Civil Engr

NAG 2-398 University of Texas - Austin 5283
Experimental study of a vortex subjected to imposed strain
Period *Obligations*
09/01/86-08/31/88 FY88: TOTAL: \$79,901
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Panton, R. L. ARC/Tobak, M. 41-Aero Engr
ARC/Peake, D. J.

NAG 3-928 University of Texas - Austin 5291
Application of superconducting electromagnetics
Period *Obligations*
09/01/88-12/01/89 FY88: \$80,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nozette, S. LERC/Schultz, D. 49-Engr, NEC
Kolm, H.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 5-528 University of Texas - Austin 5292
Simulation and analysis of a geopotential mission
Period *Obligations*
04/15/85-11/14/88 FY88: TOTAL: \$260,000
Prin. Invest. NASA Tech. Officer CASE Category
Schutz, B. GSFC/Welker, J. E. 32-Geological Sci
Tapley, B. D.

NAG 5-940 University of Texas - Austin 5300
Precision ephemeris determination for the department of defense Global Positioning System
Period *Obligations*
07/01/87-07/31/89 FY88: \$165,000 TOTAL: \$235,000
Prin. Invest. NASA Tech. Officer CASE Category
Tapley, B. D. GSFC/Kolenkiewicz, R. 32-Geological Sci

NAG 5-628 University of Texas - Austin 5293
A sounding rocket experiment to image the far UV emissions of Halley's comet
Period *Obligations*
10/01/84-11/30/87 FY88: TOTAL: \$58,333
Prin. Invest. NASA Tech. Officer CASE Category
Opal, C. B. GSFC/Early, L. J. 13-Physics
GSFC/Pless, R. H.

NAG 5-978 University of Texas - Austin 5301
Ultraviolet observations of the possible halo of a selected planetary nebula
Period *Obligations*
09/01/87-08/31/89 FY88: \$34,053 TOTAL: \$47,653
Prin. Invest. NASA Tech. Officer CASE Category
Danly, L. GSFC/Kondo, Y. 11-Astronomy
Garnett, D. R.

NAG 5-746 University of Texas - Austin 5294
Altimeter measurements for determination of the Earth's gravity field
Period *Obligations*
03/15/86-08/14/89 FY88: \$40,000 TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer CASE Category
Tapley, B. D. GSFC/Christodoulidis, D. C. 13-Physics
Schutz, B. E. GSFC/Marsh, J. G.

NAG 5-987 University of Texas - Austin 5302
Analysis of coordinated observations of a giant stellar flare
Period *Obligations*
09/01/87-08/31/89 FY88: TOTAL: \$2,520
Prin. Invest. NASA Tech. Officer CASE Category
Lambert, D. L. GSFC/Kondo, Y. 11-Astronomy
Hawley, S. L.

NAG 5-754 University of Texas - Austin 5295
Earth rotation parameters from-an on-site study of laser ranging data
Period *Obligations*
03/15/86-04/30/89 FY88: \$39,578 TOTAL: \$118,441
Prin. Invest. NASA Tech. Officer CASE Category
Shelus, P. J. GSFC/Frey, H. V. 32-Geological Sci
Ricklefs, R. L.

NAG 5-994 University of Texas - Austin 5303
Ultraviolet/optical observations binary white dwarf stars
Period *Obligations*
09/01/87-08/31/88 FY88: \$15,800 TOTAL: \$15,800
Prin. Invest. NASA Tech. Officer CASE Category
Winget, D. E. GSFC/Kondo, Y. 11-Astronomy
Warner, B.

NAG 5-756 University of Texas - Austin 5296
Studies of water storage and other contributions to changes in the rotation of the Earth
Period *Obligations*
03/15/86-05/31/89 FY88: \$54,447 TOTAL: \$185,745
Prin. Invest. NASA Tech. Officer CASE Category
Wilson, C. R. GSFC/Frey, H. V. 32-Geological Sci

NAG 5-1021 University of Texas - Austin 5304
Lageas satellite laser ranging data analysis
Period *Obligations*
11/01/87-10/31/88 FY88: \$92,612 TOTAL: \$92,612
Prin. Invest. NASA Tech. Officer CASE Category
Tapley, B. D. GSFC/Kolenkiewicz, R. 32-Geological Sci

NAG 5-757 University of Texas - Austin 5297
Geophysical parameters from the analysis of laser ranging and starlette
Period *Obligations*
03/15/86-05/31/89 FY88: \$67,510 TOTAL: \$179,666
Prin. Invest. NASA Tech. Officer CASE Category
Schutz, B. E. GSFC/Frey, H. V. 32-Geological Sci
Shum, C. K.

NAG 5-1041 University of Texas - Austin 5305
A seismotectonic and seismic slip characterization of the ocean continient transition in the region of the Gulf of California
Period *Obligations*
03/15/88-03/14/89 FY88: \$50,148 TOTAL: \$50,148
Prin. Invest. NASA Tech. Officer CASE Category
Sclater, J. G. GSFC/Welker, J. E. 32-Geological Sci

NAG 5-761 University of Texas - Austin 5298
Research relative to coronae dynamics
Period *Obligations*
04/15/86-02/29/88 FY88: TOTAL: \$81,529
Prin. Invest. NASA Tech. Officer CASE Category
Steinolfson, R. S. GSFC/Bullock, G. D. 19-Phys Sci, NEC

NAG 9-114 University of Texas - Austin 5306
Hypervelocity penetration study of composite materials
Period *Obligations*
06/01/85-12/01/88 FY88: TOTAL: \$108,114
Prin. Invest. NASA Tech. Officer CASE Category
Yew, C. H. JSC/Crews, J. 47-Materials Engr
Kyriakides, S.

NAG 5-787 University of Texas - Austin 5299
Undersea volcano production versus lithospheric strength
Period *Obligations*
06/01/86-02/28/89 FY88: \$2,612 TOTAL: \$138,612
Prin. Invest. NASA Tech. Officer CASE Category
Tapl, B. D. GSFC/Welker, J. E. 32-Geological Sci

NAG 9-188 University of Texas - Austin 5307
The development of technology for improving productivity
Period *Obligations*
12/01/86-12/01/88 FY88: TOTAL: \$184,000
Prin. Invest. NASA Tech. Officer CASE Category
Tesar, D. JSC/Gist, A. D. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 9-198 University of Texas - Austin 5308
Interaction of solid polymers with volatile materials
Period Obligations
01/01/87-07/01/88 FY88: TOTAL: \$46,430
Prin. Invest. NASA Tech. Officer CASE Category
Munk, P. JSC/Visentine, J. T. 32-Geological Sci

NAG 9-199 University of Texas - Austin 5309
Experimental studies of selected technical surfaces
Period Obligations
01/01/87-01/01/88 FY88: TOTAL: \$64,236
Prin. Invest. NASA Tech. Officer CASE Category
Erskine, J. L. JSC/Castner, W. L. 47-Materials Engr

NAG 9-200 University of Texas - Austin 5310
A qualitative approach to robot exploration and mapping
Period Obligations
01/01/87-04/01/89 FY88: \$62,348 TOTAL: \$119,896
Prin. Invest. NASA Tech. Officer CASE Category
Kuipers, B. JSC/Erickson, J. D. 49-Engr, NEC

NAG 9-201 University of Texas - Austin 5311
Energy transfer in the ignition mechanism of a NASA standard initiator
Period Obligations
02/01/87-08/01/88 FY88: TOTAL: \$28,437
Prin. Invest. NASA Tech. Officer CASE Category
Varghese, P. L. JSC/Tassel, K. V. 46-Mech Engr

NAG 9-202 University of Texas - Austin 5312
Transport and mechanical properties of engineering thermoplastics in harsh and chemical environments
Period Obligations
02/16/87-02/15/88 FY88: TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
Barlow, J. W. JSC/Le, M. 43-Chem Engr

NAG 9-204 University of Texas - Austin 5313
Recession of surfaces by fast o-atom bombardment
Period Obligations
02/01/87-08/01/88 FY88: TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Fink, M. JSC/Visentine, J. T. 47-Materials Engr

NAG 9-205 University of Texas - Austin 5314
Thermal fatigue in metal matrix composites
Period Obligations
01/01/87-04/01/89 FY88: \$77,897 TOTAL: \$157,897
Prin. Invest. NASA Tech. Officer CASE Category
Marcus, H. L. JSC/Horiuchi, G. K. 47-Materials Engr
Rabenberg, L. K.

NAG 9-278 University of Texas - Austin 5315
Designing and evaluating automation and robotics technologies for space systems
Period Obligations
04/01/88-04/01/89 FY88: \$48,913 TOTAL: \$48,913
Prin. Invest. NASA Tech. Officer CASE Category
Bard, J. F. JSC/Heydorn, R. P. 46-Mech Engr

NAG 9-279 University of Texas - Austin 5316
Control structures interaction research
Period Obligations
04/01/88-04/01/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Wie, B. JSC/Sunkel, J. W. 41-Aero Engr

NAG 9-287 University of Texas - Austin 5317
Applications of synthetic neural network to Fault detection and diagnosis
Period Obligations
04/01/88-04/01/89 FY88: \$47,683 TOTAL: \$47,683
Prin. Invest. NASA Tech. Officer CASE Category
Himmelblau, D. M. JSC/Savely, R. T. 56-Medical Sciences

NAG 9-288 University of Texas - Austin 5318
New adaptive control structures with application to the control of a space platform
Period Obligations
04/01/88-04/01/89 FY88: \$46,355 TOTAL: \$46,355
Prin. Invest. NASA Tech. Officer CASE Category
Speyer, J. L. JSC/Bishop, L. R. 41-Aero Engr

NAG 9-301 University of Texas - Austin 5319
Heat transfer in zirconium potassium perchlorate at low temperatures
Period Obligations
08/01/88-09/01/89 FY88: \$12,500 TOTAL: \$12,500
Prin. Invest. NASA Tech. Officer CASE Category
Varghese, P. L. JSC/Van Tassel, K. E. 46-Mech Engr

NAGW 846 University of Texas - Austin 5320
Magnetic energy storage and conversion in the solar atmosphere
Period Obligations
12/01/85-11/30/88 FY88: \$110,000 TOTAL: \$290,395
Prin. Invest. NASA Tech. Officer CASE Category
Tajima, T. HQ-E/Rosendhal, J. D. 13-Physics
HQ-E/Konkel, R. M.

NAGW 964 University of Texas - Austin 5321
A center of excellence for hypersonic training and research
Period Obligations
08/01/86-07/31/88 FY88: TOTAL: \$398,378
Prin. Invest. NASA Tech. Officer CASE Category
Bertin, J. J. HQ-RF/Wander, S. M. 13-Physics
Amirkabitan, I. HQ-RF/Graves, R. A.
Crawford, M.

NAGW 1064 University of Texas - Austin 5322
Meteoroid environment near the Earth Moon system
Period Obligations
05/01/87-01/31/89 FY88: \$28,000 TOTAL: \$60,685
Prin. Invest. NASA Tech. Officer CASE Category
Nakamura, Y. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1324 University of Texas - Austin 5323
Coronal dynamics
Period Obligations
06/01/88-05/31/89 FY88: \$44,157 TOTAL: \$44,157
Prin. Invest. NASA Tech. Officer CASE Category
Steinolfson, R. S. HQ-ES/Ahluwalia, H. S. 13-Physics

NAGW 1330 University of Texas - Austin 5324
Measuring the lense thirring precession using a second lagees satellite
Period Obligations
04/01/88-03/31/89 FY88: \$90,000 TOTAL: \$90,000
Prin. Invest. NASA Tech. Officer CASE Category
Tapley, B. D. HQ-EZ/Stachnik, R. V. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 1-17802 **University of Texas - Austin** **5325**
Performance of technical support in propagation of noise from large wind turbine generators
Period *Obligations*
07/20/84-10/30/87 FY88: TOTAL: \$143,973
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blackstock, D. T. LARC/Preisser, J. S. 13-Physics
LARC/Deloach, R.

NAS 8-32906 **University of Texas - Austin** **5333**
Scientific investigations in support of the space telescope project, to assure that the space telescope will perform astrometric functions
Period *Obligations*
02/01/78-01/31/89 FY88: \$675,000 TOTAL: \$4,425,033
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jefferys, W. H. MSFC/Harrington, M. M. 11-Astronomy

NAS 5-27344 **University of Texas - Austin** **5326**
Satellite laser ranging group of the crustal dynamics project
Period *Obligations*
11/16/82-11/16/87 FY88: TOTAL: \$330,195
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tapley, B. D. GSFC/Kolenkiewicz, R. 32-Geological Sci

NAS 8-35338 **University of Texas - Austin** **5334**
Multishaker modal testing
Period *Obligations*
08/10/83-08/31/87 FY88: TOTAL: \$134,539
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craig, R. R. MSFC/Kiefling, L. 46-Mech Engr
MSFC/Jordan, J. D.

NAS 5-28192 **University of Texas - Austin** **5327**
Solid Earth dynamics using lase as range observations
Period *Obligations*
07/08/84-01/08/89 FY88: TOTAL: \$711,635
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tapley, B. GSFC/Mead, G. 31-Atmos Sci
Schutz, B. E.

NAS 8-36224 **University of Texas - Austin** **5335**
A computer aided approach to nonlinear control synthesis
Period *Obligations*
06/24/87-06/23/89 FY88: \$58,990 TOTAL: \$115,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wie, B. MSFC/Carroll, S. N. 22-Computer Science
MSFC/Crook, G. S.

NAS 5-29285 **University of Texas - Austin** **5328**
Space telescope guaranteed observation program
Period *Obligations*
12/20/85-05/31/90 FY88: \$12,000 TOTAL: \$174,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jefferys, W. H. GSFC/Kalinowski, K. 41-Aero Engr

NAS 9-13680 **University of Texas - Austin** **5336**
Assessment of real gas effects on the extrapolation of shuttle flow field phenomena to flight conditions
Period *Obligations*
09/27/73-08/31/86 FY88: TOTAL: \$376,467
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bertin, J. J. JSC/Goodrich, W. D. 41-Aero Engr

NAS 5-29395 **University of Texas - Austin** **5329**
Guaranteed time observations of the high resolution spectrograph of the Hubble space telescope
Period *Obligations*
02/24/87-10/31/91 FY88: \$33,000 TOTAL: \$58,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trafton, L. GSFC/Vitagliano, H. D. 11-Astronomy

NAS 9-17254 **University of Texas - Austin** **5337**
Study of attachment modes in the control of large space structures
Period *Obligations*
10/01/84-12/31/88 FY88: TOTAL: \$119,193
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craig, R. JSC/Rocha, R. 42-Astro Engr
Bennighof, J. K. JSC/Dagen, J.

NAS 5-29404 **University of Texas - Austin** **5330**
Laser tracking support
Period *Obligations*
01/01/86-03/31/89 FY88: \$501,173 TOTAL: \$1,782,873
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shelvs, P. J. GSFC/Appler, R. 49-Engr, NEC
GSFC/Portas, S.

NAS 9-17499 **University of Texas - Austin** **5338**
Analysis of jet interaction phenomenon
Period *Obligations*
02/01/86-11/01/86 FY88: TOTAL: \$8,823
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bertin, J. J. JSC/Kanipe, D. B. 41-Aero Engr

NAS 5-29410 **University of Texas - Austin** **5331**
Guaranteed time observation program
Period *Obligations*
02/04/86-05/31/90 FY88: \$3,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lambert, D. GSFC/Kalinowski, J. K. 41-Aero Engr

NCA 2-34 **University of Texas - Austin** **5339**
An infrared spectroscopic and polarimetric study of mass outflows from stars
Period *Obligations*
05/15/85-11/15/87 FY88: TOTAL: \$16,392
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dinerstein, H. L. ARC/Werner, M. W. 11-Astronomy

NAS 8-32905 **University of Texas - Austin** **5332**
Scientific investigation in support of the space telescope project
Period *Obligations*
02/15/78-01/31/89 FY88: \$31,828 TOTAL: \$390,524
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lambert, D. L. MSFC/Taylor, W. E. 11-Astronomy

NCA 2-148 **University of Texas - Austin** **5340**
A study of joint fixativity in joined wing aircraft
Period *Obligations*
07/01/86-12/31/86 FY88: TOTAL: \$4,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stearman, R. O. ARC/Smith, S. C. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NCA 2-179 University of Texas - Austin 5341
Application of 3 D complex variables to potential flows
Period Obligations
11/01/86-10/31/88 FY88: \$29,970 TOTAL: \$60,103
Prin. Invest. NASA Tech. Officer CASE Category
Panton, R. L. ARC/Martin, E. D. 46-Mech Engr

NGT 00-050-172 University of Texas - Austin 5349
NASA graduate student researchers program
Period Obligations
09/01/87-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Dolling, D. S. HQ-XE/Owens, F. C. 41-Aero Engr

NCA 2-207 University of Texas - Austin 5342
Instabilities and the transition to turbulent flow in channels with cylindrical eddy promoters
Period Obligations
06/01/87-05/31/89 FY88: \$25,000 TOTAL: \$55,000
Prin. Invest. NASA Tech. Officer CASE Category
Swinney, H. L. ARC/Chapman, G. T. 13-Physics

NGT 00-050-180 University of Texas - Austin 5350
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Smoluchowski, R. HQ-XE/Owens, F. C. 11-Astronomy

NCA 2-224 University of Texas - Austin 5343
Turbulent boundary layer analysis with chemical reaction and heat transfer
Period Obligations
06/01/87-12/31/87 FY88: TOTAL: \$3,086
Prin. Invest. NASA Tech. Officer CASE Category
Carey, G. ARC/Chapman, G. 41-Aero Engr

NGT 00-050-210 University of Texas - Austin 5351
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Winget, D. E. HQ-XE/Owens, F. C. 31-Atmos Sci

NCA 2-781401 University of Texas - Austin 5344
Test of the strange attractor hypothesis for turbulent channel flow
Period Obligations
09/15/84-05/15/87 FY88: TOTAL: \$77,614
Prin. Invest. NASA Tech. Officer CASE Category
Swinney, H. L. ARC/Chapman, G. T. 13-Physics
ARC/Moin, P.

NGT 00-050-222 University of Texas - Austin 5352
NASA graduate student researchers program
Period Obligations
09/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Westkaemper, J. HQ-XE/Owens, F. C. 41-Aero Engr

NCC 2-286 University of Texas - Austin 5345
Crew selection training and performance
Period Obligations
02/01/84-10/31/88 FY88: \$210,000 TOTAL: \$670,726
Prin. Invest. NASA Tech. Officer CASE Category
Helmreich, R. L. ARC/Foushee, H. C. 62-Social Aspects
ARC/Tanner, T. A.

NGT 00-050-223 University of Texas - Austin 5353
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/88 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Koen, B. V. HQ-XE/Owens, F. C. 46-Mech Engr

NGR 44-012-152 University of Texas - Austin 5346
A program of planetary studies
Period Obligations
06/25/69-12/31/88 FY88: \$555,000 TOTAL: \$8,118,839
Prin. Invest. NASA Tech. Officer CASE Category
Smith, H. J. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NGT 00-050-249 University of Texas - Austin 5354
NASA graduate student researchers program
Period Obligations
09/01/87-08/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Lambert, D. L. HQ-XE/Owens, F. C. 11-Astronomy

NGT 00-050-062 University of Texas - Austin 5347
NASA graduate student researchers program
Period Obligations
09/01/86-08/31/88 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Fowler, W. T. HQ-LE/Owens, F. C. 41-Aero Engr

NGT 00-050-311 University of Texas - Austin 5355
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Cochran, W. D. HQ-XE/Owens, F. C. 11-Astronomy

NGT 00-050-155 University of Texas - Austin 5348
NASA graduate student researchers program
Period Obligations
09/01/87-08/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Tapley, B. D. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 00-050-316 University of Texas - Austin 5356
NASA graduate student researchers program
Period Obligations
09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Shapiro, P. R. HQ-XE/Owens, F. C. 11-Astronomy

NGT 00-050-320 University of Texas - Austin 5357
NASA graduate student researchers program
Period Obligations
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Evans, N. J. HQ-XE/Owens, F. C. 13-Physics

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGT 00-070-014 University of Texas - Austin 5358
Graduate student researchers underrepresented minority focus program
Period Obligations
01/01/87-12/31/87 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Nozette, S. HQ-LE/Owens, F. C. 41-Aero Engr

NSG 7505 University of Texas - Austin 5366
Solid state problems in the solar systems
Period Obligations
09/01/78-10/31/88 FY88: \$13,000 TOTAL: \$489,713
Prin. Invest. NASA Tech. Officer CASE Category
Smoluchowski, R. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NGT 00-070-023 University of Texas - Austin 5359
Graduate student researchers underrepresented minority focus program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Nozette, S. HQ-LE/Owens, F. C. 41-Aero Engr

NAG 2-366 University of Texas - Dallas 5367
Unmodeled dynamics and nonlinear control
Period Obligations
07/01/85-08/31/88 FY88: TOTAL: \$56,564
Prin. Invest. NASA Tech. Officer CASE Category
Hunt, C. R. ARC/Meyer, G. 49-Engr, NEC

NGT 00-070-029 University of Texas - Austin 5360
Graduate student researchers underrepresented minority focus program
Period Obligations
09/01/87-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Wilson, C. R. HQ-XE/Owens, F. C. 32-Geological Sci

NAG 5-305 University of Texas - Dallas 5368
Retarding potential analyzer research
Period Obligations
04/01/83-03/15/89 FY88: \$20,000 TOTAL: \$1,021,297
Prin. Invest. NASA Tech. Officer CASE Category
Hanson, W. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NGT 00-070-032 University of Texas - Austin 5361
Graduate student researchers underrepresented minority focus program
Period Obligations
08/01/87-07/31/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Bertin, J. J. HQ-XE/Owens, F. C. 41-Aero Engr

NAG 5-306 University of Texas - Dallas 5369
Ion drift meter research
Period Obligations
04/01/83-02/15/89 FY88: \$46,000 TOTAL: \$1,051,370
Prin. Invest. NASA Tech. Officer CASE Category
Heelis, R. A. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Hoffman, R. A.

NGT 44-012-803 University of Texas - Austin 5362
NASA graduate student researchers program
Period Obligations
06/01/84-08/31/88 FY88: TOTAL: \$49,000
Prin. Invest. NASA Tech. Officer CASE Category
Hull, D. G. HQ-LB/Owens, F. C. 49-Engr, NEC
Speyer, J. L.

NAG 8-55 University of Texas - Dallas 5370
Development of flight type instrumentation to provide new capabilities for improved low-energy plasma measurements in the terrestrial atmosphere
Period Obligations
02/14/86-02/13/88 FY88: TOTAL: \$69,912
Prin. Invest. NASA Tech. Officer CASE Category
Hoffman, J. H. MSFC/Chappell, C. R. 31-Atmos Sci
Hanson, W. B. MSFC/Fields, S.

NSG 5379 University of Texas - Austin 5363
Ultraviolet spectroscopy of symbiotic stars, recurrent and old novae
Period Obligations
06/25/79-07/31/88 FY88: TOTAL: \$89,600
Prin. Invest. NASA Tech. Officer CASE Category
Lambert, D. L. GSFC/Kondo, Y. 11-Astronomy
Smith, V. V.

NAG 8-80 University of Texas - Dallas 5371
The application of 360 rotating ion mirror as an input device to a retarding ion mass spectrometer for low energy measurements in the terrestrial atmosphere
Period Obligations
12/04/86-10/31/88 FY88: \$32,856 TOTAL: \$128,370
Prin. Invest. NASA Tech. Officer CASE Category
Hoffman, J. H. MSFC/Waite, J. H. 13-Physics
Hanson, W. B. MSFC/Fields, S. A.

NSG 7232 University of Texas - Austin 5364
Astrophysics of supermassive accretion disks
Period Obligations
05/01/76-06/30/89 FY88: \$29,000 TOTAL: \$328,171
Prin. Invest. NASA Tech. Officer CASE Category
Shields, G. HQ-EZ/Stachnik, R. V. 39-Env Sci, NEC
Wheeler, J. C. HQ-EZ/Bogges, N. W.

NAG 8-616 University of Texas - Dallas 5372
Toroidal ion optics for focusing energy selection of ion mass analyzer
Period Obligations
01/01/87-12/31/87 FY88: TOTAL: \$24,914
Prin. Invest. NASA Tech. Officer CASE Category
Hoffman, J. H. MSFC/Fields, S. A. 13-Physics
MSFC/Chappell, C. R.

NSG 7480 University of Texas - Austin 5365
The cellular bases of gravity- and light-induced geotropism
Period Obligations
08/15/78-10/31/88 FY88: \$60,000 TOTAL: \$502,000
Prin. Invest. NASA Tech. Officer CASE Category
Roux, S. J. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 8-623 University of Texas - Dallas 5373
Low energy plasma dynamics
Period Obligations
03/16/87-03/15/88 FY88: TOTAL: \$35,000
Prin. Invest. NASA Tech. Officer CASE Category
Heelis, R. A. MSFC/Moore, T. E. 13-Physics
Hoffman, J. H. MSFC/Fields, S. A.
Hanson, W. B.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 8-688 University of Texas - Dallas 5374
Design studies of the thermal ion dynamics experiment for the ISTEP
Period *Obligations*
10/01/87-09/30/88 FY88: \$75,008 TOTAL: \$75,008
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. MSFC/Chappell, C. R. 13-Physics
MSFC/Fields, S. A.

NAG 9-297 University of Texas - Dallas 5375
Firmness autonomic regulation and orthostatic tolerance
Period *Obligations*
05/01/88-05/01/89 FY88: \$80,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buckey, J. C. JSC/Charles, J. B. 56-Medical Sciences

NAGW 632 University of Texas - Dallas 5376
Atomic data of planetary and cometary interest
Period *Obligations*
04/01/84-03/31/88 FY88: TOTAL: \$85,496
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cunningham, A. J. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 935 University of Texas - Dallas 5377
Impulsive penetration and viscous interaction
Period *Obligations*
09/01/86-08/31/89 FY88: \$40,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Perry, T. W.

NAGW 957 University of Texas - Dallas 5378
To find the normal component of the magnetic field across the neutral sheet in the distant magnetotail detected by ISEE 3
Period *Obligations*
09/01/86-08/31/89 FY88: \$30,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. HQ-ES/Mellott, M. M. 13-Physics
HQ-EE/Eastman, T. E.

NAGW 1161 University of Texas - Dallas 5379
Evaluation of the hamisara shear zone ne suclar an integrated program of remote sensing field studies and geochronology
Period *Obligations*
08/01/87-05/31/89 FY88: \$63,290 TOTAL: \$110,590
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stern, R. J. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Murphy, R. E.

NAGW 1267 University of Texas - Dallas 5380
Giotto data analysis neutral mass spectrometer data from Halley's comet
Period *Obligations*
02/01/88-01/31/89 FY88: \$163,776 TOTAL: \$163,776
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Quaide, W. L.

NAS 1-17399 University of Texas - Dallas 5381
Support activities to maintain shuttle upper atmosphere mass spectrometer (SUMS) flight readiness
Period *Obligations*
07/15/83-08/31/89 FY88: \$114,822 TOTAL: \$462,216
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. LARC/Blanchard, R. C. 19-Phys Sci, NEC
LARC/Duckett, R. J.

NAS 5-25310 University of Texas - Dallas 5382
Design, development, fabrication, test and calibration of the ion velocity instrument for the San Marco spacecraft
Period *Obligations*
09/18/78-11/30/89 FY88: \$166,533 TOTAL: \$578,897
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. GSFC/Adkins, R. E. 13-Physics

NAS 8-33827 University of Texas - Dallas 5383
Measurement of visible and UV emissions from energetic neutral atom precipitation definition phase study
Period *Obligations*
08/12/80-04/15/92 FY88: \$13,000 TOTAL: \$311,875
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tinsley, B. A. MSFC/Jones, C. T. 31-Atmos Sci
Rohrbaugh, D. P. MSFC/Ise, R.

NAS 8-35011 University of Texas - Dallas 5384
Definition phase for thermal ion dynamics experiment for OPEN
Period *Obligations*
08/26/82-09/30/86 FY88: TOTAL: \$84,759
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hofman, J. H. MSFC/Chappell, C. R. 11-Astronomy
Heelis, R. A. MSFC/Fields, S. A.
Hanson, W. B.

NAS 8-36954 University of Texas - Dallas 5385
Cometary retarding ion mass spectrometer development
Period *Obligations*
07/28/87-12/27/88 FY88: \$84,628 TOTAL: \$269,628
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heelis, R. A. MSFC/Moore, T. E. 11-Astronomy

NASW 3576 University of Texas - Dallas 5386
Development of a mass and energy spectrometer system for analysis of gaseous environment
Period *Obligations*
03/15/82-04/30/88 FY88: TOTAL: \$1,061,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Brinton, H. C.

NCC 1-119 University of Texas - Dallas 5387
Aeroassist flight experiment ion mass spectrometer feasibility study
Period *Obligations*
06/01/87-05/31/89 FY88: TOTAL: \$175,405
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. LARC/Gustafson, J. C. 13-Physics
LARC/Hartung, L. C.

NGL 44-004-026 University of Texas - Dallas 5388
Investigations into the mechanism and rates of atmospheric mixing in the lower thermosphere
Period *Obligations*
05/05/65-03/31/89 FY88: \$74,281 TOTAL: \$3,365,054
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, F. S. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NGR 44-004-120 University of Texas - Dallas 5389
Space plasma physics data analysis program
Period *Obligations*
02/09/71-09/30/88 FY88: \$150,000 TOTAL: \$2,115,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. HQ-ES/Mellott, M. M. 31-Atmos Sci
Heelis, R. A. HQ-ES/Parks, G. K.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGT 44-013-800 University of Texas - Dallas 5390
 NASA graduate student researchers program
Period *Obligations*
 06/01/84-07/31/87 FY88: TOTAL: \$51,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hanson, W. HQ-LB/Owens, F. C. 13-Physics

NCA 2-350 University of Texas - El Paso 5398
 An assessment of research areas for extension and implementation of the di-mod project in the America's
Period *Obligations*
 10/01/88-06/30/89 FY88: \$24,950 TOTAL: \$24,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Riter, S. ARC/Sebesta, P. D. 39-Env Sci, NEC

NSG 5085 University of Texas - Dallas 5391
 Particle spectrometer on board ISIS-2
Period *Obligations*
 11/01/75-09/30/87 FY88: TOTAL: \$355,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Heikkila, W. J. GSFC/Brace, L. H. 31-Atmos Sci
 Klumpar, D. M.

NGT 00-070-086 University of Texas - El Paso 5399
 Graduate student researchers underrepresented minority focus program
Period *Obligations*
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McClure, J. C. HQ-XE/Owens, F. C. 49-Engr, NEC

NAG 9-146 University of Texas - El Paso 5392
 Vibration frequencies of tapered bars with nonclassical boundary conditions
Period *Obligations*
 06/01/86-04/01/89 FY88: \$68,394 TOTAL: \$167,128
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Craver, W. L., Jr. JSC/Holder, B. W. 46-Mech Engr

NGT 00-070-087 University of Texas - El Paso 5400
 Graduate student researchers underrepresented minority focus program
Period *Obligations*
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McClure, J. C. HQ-XE/Owens, F. C. 49-Engr, NEC

NAG 9-147 University of Texas - El Paso 5393
 Improved knowledge acquisition and refinement in knowledge based systems
Period *Obligations*
 09/01/86-06/01/88 FY88: TOTAL: \$96,929
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Patterson, D. W. JSC/Healey, K. J. 22-Computer Science

NAG 2-26 Univ of Texas Medical Branch - Galveston 5401
 Central otolithic mechanisms in non-human primates
Period *Obligations*
 01/01/80-11/30/88 FY88: \$95,000 TOTAL: \$552,167
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Perachio, A. A. ARC/Daunton, N. G. 51-Biological Sci
 Carreta, M. J. ARC/Corcoran, M. L.
 Kevette, G. A.

NAG 9-175 University of Texas - El Paso 5394
 Impact of solids onto composite materials
Period *Obligations*
 09/01/86-09/01/87 FY88: TOTAL: \$74,628
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bronson, A. JSC/Pigg, O. E. 47-Materials Engr
 Roschke, P. N.

NAG 2-186 Univ of Texas Medical Branch - Galveston 5402
 Investigations of otolith responses using ground based vestibular research facility
Period *Obligations*
 07/01/82-06/30/89 FY88: TOTAL: \$290,577
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Correia, M. J. ARC/Tomko, D. L. 51-Biological Sci
 Perachio, A. A. ARC/Kirk, P. J.
 Anderson, D. J.

NAG 9-281 University of Texas - El Paso 5395
 Fracture criteria for beryllium sheets
Period *Obligations*
 04/01/88-04/01/89 FY88: \$77,885 TOTAL: \$77,885
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Guard, R. W. JSC/Castner, W. L. 47-Materials Engr

NAG 2-260 Univ of Texas Medical Branch - Galveston 5403
 The identification and pharmacology of neurotransmitters in the vestibular nuclei
Period *Obligations*
 12/01/83-11/30/88 FY88: \$60,775 TOTAL: \$349,775
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gallagher, J. P. ARC/Daunton, N. G. 51-Biological Sci
 ARC/Corcoran, M. L.

NAG 9-285 University of Texas - El Paso 5396
 Improved knowledge acquisition and refinement through analogical explanation based learning
Period *Obligations*
 04/01/88-04/01/89 FY88: \$85,938 TOTAL: \$85,938
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Patterson, D. JSC/Healey, K. 22-Computer Science

NAG 2-293 Univ of Texas Medical Branch - Galveston 5404
 Morphological and electrophysiological studies of the vestibular afferent efferent system
Period *Obligations*
 04/01/84-03/31/89 FY88: \$50,000 TOTAL: \$357,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Correia, M. H. ARC/Daunton, N. G. 51-Biological Sci
 ARC/Corcoran, M. L.

NAS 8-37425 University of Texas - El Paso 5397
 The effect of impurity gases on variable polarity plasma arc VPPA welded aluminum
Period *Obligations*
 04/05/88-09/04/89 FY88: \$85,438 TOTAL: \$85,438
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McClure, J. C. MSFC/Nunes, A. C. 47-Materials Engr
 MSFC/Bayless, E. O.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 2-446 Univ of Texas Medical Branch - Galveston 5405

Vestibular primary afferents in normal hyper- and hypogravity
Period *Obligations*
 03/01/87-11/30/88 FY88: \$107,484 TOTAL: \$151,495
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Correia, M. J. ARC/Connolly, J. P. 51-Biological Sci
 Perachio, A. A. ARC/Ballard, R. W.

NAG 9-170 Univ of Texas Medical Branch - Galveston 5406

Effect of psychological stress on immune dysfunction
Period *Obligations*
 08/01/86-06/01/89 FY88: \$50,000 TOTAL: \$126,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meehan, R. T. JSC/Taylor, G. R. 56-Medical Sciences

NAG 9-172 Univ of Texas Medical Branch - Galveston 5407

The mechanism of the development in humans of disuse muscle atrophy
Period *Obligations*
 09/01/86-02/01/89 FY88: \$100,000 TOTAL: \$258,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stuart, C. A. JSC/Cintron, N. M. 56-Medical Sciences
 Prince, M. J.
 Wolfe, R. R.

NAG 9-306 Univ of Texas Medical Branch - Galveston 5408

Peptide hormone receptor regulation on human peripheral blood mononuclear cells
Period *Obligations*
 08/01/88-08/01/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meehan, R. T. JSC/Sams, C. F. 56-Medical Sciences
 Cintron, N. M.

NAG 9-315 Univ of Texas Medical Branch - Galveston 5409

Maladjustment of kidneys to microgravity design of measures to reduce the loss of calcium
Period *Obligations*
 09/01/88-08/31/89 FY88: \$13,636 TOTAL: \$13,636
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nechay, B. R. JSC/Goldstein, S. H. 19-Phys Sci, NEC

NGT 00-050-165 Univ of Texas Medical Branch - Galveston 5410

NASA graduate student researchers program
Period *Obligations*
 09/01/87-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Perachio, A. A. HQ-XE/Owens, F. C. 51-Biological Sci

NGT 44-008-801 Univ of Texas Medical Branch - Galveston 5411

NASA graduate student researchers program
Period *Obligations*
 09/01/85-03/31/87 FY88: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Perachio, A. HQ-LE/Owens, F. C. 56-Medical Sciences

NAG 9-152 Univ of Texas, Health Sci Ctr-Dallas 5412

Renal stone formation study
Period *Obligations*
 05/01/86-05/01/89 FY88: \$99,000 TOTAL: \$279,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pak, C. Y. JSC/Cintron, N. M. 56-Medical Sciences
 Nicar, M.

NAG 9-267 Univ of Texas, Health Sci Ctr-Dallas 5413

A three dimensional approach to endocardiographic ventricular volumes
Period *Obligations*
 01/01/88-01/01/89 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Buckley, J. C. JSC/Charles, J. B. 56-Medical Sciences
 Zoghbi, W. A.

NAS 9-16044 Univ of Texas, Health Sci Ctr-Dallas 5414

Cardiovascular adaption to zero gravity
Period *Obligations*
 01/17/80-12/01/90 FY88: \$402,368 TOTAL: \$3,094,608
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Blomquist, C. G. JSC/Young, W. 59-Life Sci, NEC

NAS 9-17167 Univ of Texas, Health Sci Ctr-Dallas 5415

Services of SL-4 payload specialist
Period *Obligations*
 01/20/84-01/01/89 FY88: \$225,000 TOTAL: \$886,435
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gaffney, F. A. JSC/Womack, W. D. 49-Engr, NEC

NGT 00-050-206 Univ of Texas, Health Sci Ctr-Dallas 5416

NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$35,500 TOTAL: \$35,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Blomqvist, C. G. HQ-XE/Owens, F. C. 69-Psych, NEC

NGT 44-080-800 Univ of Texas, Health Sci Ctr-Dallas 5417

NASA graduate student researchers program
Period *Obligations*
 05/01/85-04/30/87 FY88: TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Templeton, G. H. HQ-LE/Owens, F. C. 13-Physics

NAG 2-239 Univ. of Texas-Hlth Science Ctr-Houston 5418

Biochemical adaptations of anti-gravity muscle fibers to disuse atrophy
Period *Obligations*
 07/01/83-10/31/88 FY88: \$41,600 TOTAL: \$284,319
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Booth, F. W. ARC/Grindeland, R. E. 51-Biological Sci

NAG 2-332 Univ. of Texas-Hlth Science Ctr-Houston 5419

Determine the effects of gravitational changes on mammalian systems developing in vitro and in vivo
Period *Obligations*
 03/01/85-06/30/88 FY88: TOTAL: \$80,197
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Duke, P. J. ARC/Daligcon, B. C. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 9-193 Univ. of Texas-Hlth Science Ctr-Houston 5420
Prevention of bed rest induced disuse osteoporosis effect of amino hydroxypropylidene bisphosphonate
Period *Obligations*
12/01/86-12/01/88 FY88: \$174,300 TOTAL: \$348,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schneider, V. JSC/Harris, B. 56-Medical Sciences
Leblanc, A.

NAG 9-215 Univ. of Texas-Hlth Science Ctr-Houston 5421
Prevention of bed rest induced disuse osteoporosis effect of amino hydroxypropylidene bisphosphonate
Period *Obligations*
01/01/87-01/01/89 FY88: \$48,062 TOTAL: \$92,062
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Butler, B. D. JSC/Waligora, J. M. 56-Medical Sciences

NAS 9-16688 Univ. of Texas-Hlth Science Ctr-Houston 5422
Long term bedrest in the study of calcium dynamics
Period *Obligations*
09/28/82-12/01/86 FY88: TOTAL: \$551,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schneider, V. S. JSC/Johnson, P. 56-Medical Sciences

NAS 9-17403 Univ. of Texas-Hlth Science Ctr-Houston 5423
Research in biological separations and cell culture
Period *Obligations*
06/01/85-10/31/89 FY88: \$831,218 TOTAL: \$3,253,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tom, B. H. JSC/Morrison, D. R. 51-Biological Sci

NAS 9-17522 Univ. of Texas-Hlth Science Ctr-Houston 5424
Apparatus and techniques for performance of surgery in zero-G technology development of surgical procedures
Period *Obligations*
09/01/85-08/01/87 FY88: TOTAL: \$69,657
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Houtchens, B. JSC/Logan, J. 56-Medical Sciences

NCC 2-423 Univ. of Texas-Hlth Science Ctr-Houston 5425
Chronodogenesis in micromass cultures of embryonic limb mesenchyme
Period *Obligations*
05/01/86-10/31/88 FY88: \$108,000 TOTAL: \$231,178
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duke, J. C. ARC/Winget, C. M. 51-Biological Sci
ARC/Ballard, R. W.

NAG 2-442 Univ of Texas-Hlth Sci Ctr-San Antonio 5426
Effects of microgravity on the statocyst of aplysia californica
Period *Obligations*
03/01/87-12/31/88 FY88: \$40,730 TOTAL: \$83,030
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wiederhold, M. L. ARC/Ross, M. D. 51-Biological Sci
Smith, N. K. ARC/Oyama, J.
Sheridan, C. E.

NAG 9-250 Univ of Texas-Hlth Sci Ctr-San Antonio 5427
Bone growth kinetics in nonhuman primate
Period *Obligations*
07/15/87-01/01/89 FY88: TOTAL: \$49,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hott, G. R. JSC/Schenider, V. S. 56-Medical Sciences

NAS 9-16366 Univ of Texas-Hlth Sci Ctr-San Antonio 5428
Quantitation of renal prostaglandins
Period *Obligations*
04/27/81-04/30/87 FY88: TOTAL: \$152,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lifschitz, M. JSC/Leach, C. 56-Medical Sciences

NAG 3-867 University of Texas at San Antonio 5429
Advanced methodologies for probabilistic constitutive relationships of material strength models
Period *Obligations*
01/12/88-01/11/89 FY88: \$20,736 TOTAL: \$20,736
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Boyce, L. LERC/Charnis, C. C. 41-Aero Engr
LERC/Johns, R. H.

NAGW 1254 University of Texas at San Antonio 5430
Two dimensional analysis of dayside ionospheric electrodynamic
Period *Obligations*
10/01/87-09/30/88 FY88: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saflekos, N. A. HQ-EE/Theis, R. F. 13-Physics
HQ-EE/Eastman, T. E.

UTAH

NAG 1-391 Brigham Young University 5431
Development of faster graphics subroutine package
Period *Obligations*
08/01/83-04/30/87 FY88: TOTAL: \$140,198
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stephenson, M. B. LARC/Lansing, D. L. 22-Computer Science
LARC/Hogge, J. E.

NAG 1-608 University of Utah 5432
Characterization of vapors related to organometallic vapor phase epitaxy OMVPE growth of ALGAINP
Period *Obligations*
07/01/85-06/30/89 FY88: \$57,000 TOTAL: \$127,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stringfellow, G. B. LARC/Clark, I. O. 43-Chem Engr
LARC/Hendricks, H. D.

NAG 1-686 University of Utah 5433
Backscatter laser depolarization from simulated stratospheric aerosols
Period *Obligations*
06/02/86-06/01/88 FY88: TOTAL: \$27,244
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sassen, K. LARC/Alvarez, J. M. 31-Atmos Sci
LARC/Poole, L. R.

NAG 1-705 University of Utah 5434
Fractography of composite delamination
Period *Obligations*
10/06/86-10/05/88 FY88: \$50,000 TOTAL: \$95,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bascom, W. D. LARC/Crews, J. H. 47-Materials Engr
LARC/Johnston, N. J.

**NASA'S UNIVERSITY PROGRAM
UTAH (Continued)**

NAG 1-706	University of Utah	5435	Surface and interfacial properties of carbon fibers		NAG 5-127	University of Utah	5443	Global scale diagnosis of satellite data
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
10/20/86-10/19/88	FY88: \$65,000	TOTAL: \$125,000			07/01/81-12/31/88	FY88: \$33,000	TOTAL: \$365,472	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bascom, W. D.	LARC/Hinkley, J. A.	47-Materials Engr			Paegle, J. N.	GSFC/Helfand, H. M.	31-Atmos Sci	
	LARC/Johnston, N. J.							
NAG 1-718	University of Utah	5436	Experimental and theoretical program for sub visual Cirrus cloud research		NAG 5-732	University of Utah	5444	Verification and deveasing a seasonal/monthly two dimensional climate model
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
12/01/86-05/31/88	FY88: \$3,000	TOTAL: \$76,000			01/20/86-01/31/89	FY88: \$83,000	TOTAL: \$244,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Sassen, K.	LARC/Alvarez, J. M.	31-Atmos Sci			Ou, S. S.	GSFC/Chou, M.	31-Atmos Sci	
Liou, K. N.	LARC/Poole, L. R.				Liou, K.			
NAG 1-868	University of Utah	5437	Lidar studies of thin cirrus for fire		NAG 5-1050	University of Utah	5445	Surface radiation retrieval methodologies using Helpe data
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
06/01/88-05/31/89	FY88: \$33,000	TOTAL: \$33,000			05/15/88-11/14/88	FY88: \$55,000	TOTAL: \$55,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Sassen, K.	LARC/Owens, T. L.	31-Atmos Sci			Liou, K. N.	GSFC/Chou, M. D.	31-Atmos Sci	
	LARC/Wagner, H. S.							
NAG 2-435	University of Utah	5438	Comprehensive analysis of the structure of the vertebrae from immobilized and reambulated monkeys		NAGW 95	University of Utah	5446	Identifying environmental features for land management decisions
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
03/01/87-01/31/89	FY88: \$60,000	TOTAL: \$123,000			08/01/80-12/31/87	FY88:	TOTAL: \$550,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Jee, W. S.	ARC/Arnaud, S. B.	51-Biological Sci			Wright, P. M.	HQ-EL/Tuyahov, A. J.	39-Env Sci, NEC	
					Ridd, M. K.			
NAG 2-444	University of Utah	5439	The friction and wear of TPS fibers		NAS 5-28753	University of Utah	5447	LANDSAT thematic mapper data investigation: A reconstruction of high levels of Great Salt Lake, Utah in Lake Holocene time
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
04/01/87-05/31/89	FY88: \$44,840	TOTAL: \$54,720			08/15/85-12/14/88	FY88: \$99,873	TOTAL: \$349,864	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bascom, W.	ARC/Kourtidis, D. A.	13-Physics			Currey, D. R.	GSFC/Oseroff, H.	32-Geological Sci	
NAG 2-469	University of Utah	5440	A test for interfacial effects and stress transfer in ceramic matrix composites		NAS 9-17345	University of Utah	5448	Pulmonary function and blood gas assessment and support system for space station health maintenance facility definition of concepts and design requirements
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
07/01/87-02/29/88	FY88:	TOTAL: \$14,983			06/15/85-04/01/87	FY88:	TOTAL: \$135,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bascom, W. D.	ARC/Ricciello, S. R.	47-Materials Engr			Westenskow, D.	JSC/Reynolds, M. A.	56-Medical Sciences	
NAG 3-327	University of Utah	5441	Backward-wave oscillators for the frequency range from 600ghz to 1800ghz		NAS 9-17425	University of Utah	5449	Development of a computerized medical data management system for space station
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
10/30/82-12/13/88	FY88: \$160,000	TOTAL: \$800,000			07/01/85-10/01/87	FY88:	TOTAL: \$90,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Grow, R. W.	LERC/Heighway, J.	45-Elec Engr			Gardner, R.	JSC/Logan, J. S.	56-Medical Sciences	
Barnett, L. R.	LERC/Stankiewicz, N.					JSC/Reynolds, M.		
NAG 3-789	University of Utah	5442	Reliability of structural ceramissin multiaxial loading		NAG 1-702	Utah State University	5450	Development of a computer program capability required for the data analysis of the interstellar gas experiment
<i>Period</i>	<i>Obligations</i>				<i>Period</i>	<i>Obligations</i>		
03/15/87-04/13/89	FY88: \$63,400	TOTAL: \$119,505			09/30/86-12/31/87	FY88:	TOTAL: \$36,332	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Shetty, D. K.	LERC/Gyekenyasi, J. P.	47-Materials Engr			Lind, D. L.	LARC/Jones, J. L.	11-Astronomy	
	LERC/Manderscheid, J. M.							

**NASA'S UNIVERSITY PROGRAM
UTAH (Continued)**

NAG 1-899	Utah State University	5451	Phase A sensor design study for the infrared limb experiment IRLE program		
<i>Period</i>	<i>Obligations</i>				
07/13/88-07/12/89	FY88: \$79,345	TOTAL: \$79,345			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Baker, D. J.	LARC/Russell, J. M., III	31-Atmos Sci			
	LARC/Sullivan, E. M.				
NAG 3-792	Utah State University	5452	Data analysis and interpretation related to space system environments intereactions at Leo altitude		
<i>Period</i>	<i>Obligations</i>				
05/01/87-08/15/89	FY88: \$50,022	TOTAL: \$100,040			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Raitt, W. J.	LERC/Purvis, C. K.	19-Phys Sci, NEC			
Schunk, R. W.					
NAG 5-603	Utah State University	5453	Experimental studies of turbulent electrostatic waves in equatorial spread F, the equatorial electrojet and in two active space plasma events		
<i>Period</i>	<i>Obligations</i>				
03/01/82-01/31/89	FY88: \$97,002	TOTAL: \$507,779			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Baker, K. D.	GSFC/Early, L. J.	13-Physics			
Howlett, L. C.	GSFC/Pless, R. H.				
St Maurice, J. P.					
NAG 5-607	Utah State University	5454	Sounding rocket experiments using tethered payloads		
<i>Period</i>	<i>Obligations</i>				
07/01/82-09/30/89	FY88: \$154,000	TOTAL: \$610,006			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Raitt, W. J.	GSFC/Early, L. J.	13-Physics			
Williamson, P. R.	GSFC/Pless, R. H.				
Parish, J. L.					
NAG 5-748	Utah State University	5455	Global dynamic ionospheric modeling		
<i>Period</i>	<i>Obligations</i>				
03/15/86-06/30/88	FY88:	TOTAL: \$80,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sojka, J. J.	GSFC/Bullock, G. D.	19-Phys Sci, NEC			
Schunk, R. W.	GSFC/Hoffman, R. A.				
NAGW 77	Utah State University	5456	The flow of plasma in the solar terrestrial environment		
<i>Period</i>	<i>Obligations</i>				
07/01/80-10/30/88	FY88: \$240,000	TOTAL: \$1,637,400			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schunk, R. W.	HQ-EE/Butler, D. M.	39-Env Sci, NEC			
	HQ-EE/Curtis, S. A.				
NAGW 689	Utah State University	5457	The dynamics of the Venus ionosphere		
<i>Period</i>	<i>Obligations</i>				
01/01/85-05/31/88	FY88:	TOTAL: \$131,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Miller, K. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci			
	HQ-EL/Quaide, W. L.				
NAG10-14	Utah State University	5458	Gravitropism in leafy dicot stems		
<i>Period</i>	<i>Obligations</i>				
01/29/85-10/31/88	FY88: \$40,490	TOTAL: \$161,475			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Salisbury, F. B.	KSC/Knott, W. M.	32-Geological Sci			
NAS 1-18682	Utah State University	5459	Measurement and modeling of joint damping		
<i>Period</i>	<i>Obligations</i>				
05/10/88-05/09/89	FY88: \$94,500	TOTAL: \$94,500			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Redd, F. J.	LARC/Clark, L. G.	42-Astro Engr			
	LARC/Lake, M. S.				
NAS 5-29422	Utah State University	5460	Stepper motor driver cryogenic valve		
<i>Period</i>	<i>Obligations</i>				
02/07/86-12/31/88	FY88:	TOTAL: \$322,064			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Haycock, R.	GSFC/Figueroa, O.	42-Astro Engr			
	GSFC/Dipirro, M.				
NAS 8-33992	Utah State University	5461	Development, integration, mission support and data analysis of the imaging spectrometric observatory experiment for Spacelab mission I		
<i>Period</i>	<i>Obligations</i>				
07/25/80-12/31/87	FY88:	TOTAL: \$3,274,971			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tort, M. R.	MSFC/Jones, C. T.	31-Atmos Sci			
	MSFC/Ise, R.				
NAS 8-37110	Utah State University	5462	Research on orbital plasma electrodynamic		
<i>Period</i>	<i>Obligations</i>				
05/04/87-10/25/91	FY88: \$3,000	TOTAL: \$6,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stone, N.	MSFC/Duncan, B.	31-Atmos Sci			
Schunk, R.	MSFC/Holder, R.				
NAS 8-37754	Utah State University	5463	Control of flexible robot manipulators in zero gravity		
<i>Period</i>	<i>Obligations</i>				
08/15/88-08/14/89	FY88: \$87,481	TOTAL: \$87,481			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Phillips, W. F.	MSFC/Nelson, P. J.	46-Mech Engr			
NAS 9-17484	Utah State University	5464	Helmet mounted CO2 sensor		
<i>Period</i>	<i>Obligations</i>				
10/01/85-10/01/87	FY88:	TOTAL: \$299,950			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bingham, G. E.	JSC/Marmolejo, J.	46-Mech Engr			
NCC 2-139	Utah State University	5465	Studies on maximum yield of wheat and other small grains in controlled environments		
<i>Period</i>	<i>Obligations</i>				
05/01/81-01/31/89	FY88: \$92,250	TOTAL: \$757,878			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Salisbury, F. B.	ARC/MacElroy, R. D.	51-Biological Sci			
Bugbee, B.					
NAG 5-992	Bennington College	5466	Remote sensing studies of forest pattern and process		
<i>Period</i>	<i>Obligations</i>				
09/01/87-02/28/89	FY88:	TOTAL: \$14,936			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Woods, K. D.	GSFC/Hall, F.	31-Atmos Sci			

**NASA'S UNIVERSITY PROGRAM
VERMONT**

VERMONT

NAG 5-762 Middlebury College 5467
Global models of coronae structures observed with Solar Maximum Mission coronagraph polarimeters
Period *Obligations*
04/15/86-11/14/89 FY88: \$32,920 TOTAL: \$98,410
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolfson, R. GSFC/Bullock, G. D. 19-Phys Sci, NEC
GSFC/Gurman, J. B.

NAG 5-801 Middlebury College 5468
A comparison of supernova ejecta in a selected supernova remnant
Period *Obligations*
07/15/86-08/31/89 FY88: \$12,600 TOTAL: \$26,840
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Winkler, P. F. GSFC/Kondo, Y. 11-Astronomy
Kirshner, R. P.

NAG 8-389 Middlebury College 5469
Investigations of the Puppis A X-ray emission line spectrum
Period *Obligations*
12/08/80-12/31/88 FY88: TOTAL: \$69,473
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Winkler, P. F., Jr. MSFC/Johnson, W. G. 11-Astronomy

NAG 8-735 Middlebury College 5470
Heavy element enrichment in supernova remnants through their X ray spectra
Period *Obligations*
07/15/88-07/14/89 FY88: \$25,960 TOTAL: \$25,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Winkler, P. F. MSFC/Harper, B. A. 11-Astronomy

NAG 9-254 Norwich University 5471
Development of the Isle microcomputer
Period *Obligations*
09/15/87-01/15/89 FY88: \$15,710 TOTAL: \$15,710
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bartram, P. N. JSC/Stilwell, D. J. 22-Computer Science

NAG 9-312 Norwich University 5472
Multiprocessor techniques in data acquisition computers
Period *Obligations*
09/01/88-09/01/89 FY88: \$24,976 TOTAL: \$24,976
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bartram, P. N. JSC/Stilwell, D. 22-Computer Science

VIRGINIA

NAG 1-268 Christopher Newport College 5473
Bacterial electrochemical asymmetry potential (BEAP)
Period *Obligations*
05/11/82-08/15/88 FY88: TOTAL: \$13,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sacks, L. J. LARC/Rhinehart, R. P. 12-Chemistry

NAG 1-431 Christopher Newport College 5474
Determination of sound speed and attenuation for ultrasonic waves in composite materials
Period *Obligations*
12/07/83-10/31/89 FY88: \$57,436 TOTAL: \$273,384
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, B. T. LARC/Madaras, E. I. 13-Physics
Buoncrisiani, A. M. LARC/Heyman, J. S.

NAG 1-523 Christopher Newport College 5475
Laser polymerization for space application
Period *Obligations*
09/18/84-01/31/89 FY88: \$6,045 TOTAL: \$34,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, C. K. LARC/Conway, E. J. 12-Chemistry
LARC/Miner, G. A.

NAG 1-585 Christopher Newport College 5476
Analysis of materials for a tunable solid state laser
Period *Obligations*
06/01/85-08/31/88 FY88: TOTAL: \$29,679
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buoncrisiani, A. M. LARC/Byvik, C. E. 13-Physics

NAG 1-796 Christopher Newport College 5477
Spectroscopy of tunable solid state laser materials
Period *Obligations*
07/06/87-08/16/89 FY88: \$173,558 TOTAL: \$268,015
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buoncrisiani, A. M. LARC/Brockman, P. 13-Physics
LARC/Hess, R. V.

NSG 1614 Christopher Newport College 5478
Theoretical study of radiation effects in composite materials for space use
Period *Obligations*
07/01/79-08/31/88 FY88: \$1,727 TOTAL: \$189,098
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, C. K. LARC/Wilson, J. W. 19-Phys Sci, NEC
LARC/Conway, E. J.

NAG 1-237 College of William And Mary 5479
Characterization of relationship of cure cycle processing properties
Period *Obligations*
12/01/81-11/30/88 FY88: \$50,625 TOTAL: \$501,089
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kranbuehl, D. E. LARC/Freeman, W. T., Jr. 12-Chemistry
LARC/Dexter, B.

NAG 1-618 College of William And Mary 5480
Fault diagnosis based on systems dynamics models
Period *Obligations*
10/01/85-12/31/87 FY88: TOTAL: \$86,576
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feyock, S. LARC/Morello, S. A. 99-Multi-Discip

NAG 1-647 College of William And Mary 5481
A requirements specification for a software design support system
Period *Obligations*
03/01/86-08/31/87 FY88: TOTAL: \$22,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Noonan, R. E. LARC/Smith, K. 22-Computer Science
LARC/Voigt, S. J.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 1-678 **College of William And Mary** **5482**
Space environmental effects on polymeric materials
Period *Obligations*
05/01/86-06/15/88 FY88: TOTAL: \$52,252
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiefer, R. L. LARC/Long, S. T. 12-Chemistry
Orwoll, R. A.

NAS 1-18347 **College of William And Mary** **5490**
Physical mathematical and computer science research
Period *Obligations*
01/13/87-01/12/92 FY88: \$239,364 TOTAL: \$584,410
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kranbuehl, D. E. LARC/Prior, E. J. 99-Multi-Discip
LARC/Massenberg, S. E.

NAG 1-775 **College of William And Mary** **5483**
Collision avoidance and path planning
Period *Obligations*
06/01/87-06/30/88 FY88: TOTAL: \$46,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bynum, W. L. LARC/Sliwa, N. E. 22-Computer Science
LARC/Cornils, K.

NCC 1-40 **College of William And Mary** **5491**
Tire nonlinear model
Period *Obligations*
04/16/80-12/31/88 FY88: \$65,000 TOTAL: \$597,103
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, C. M. LARC/Tanner, J. A. 46-Mech Engr
LARC/Lopez, M. C.

NAG 1-787 **College of William And Mary** **5484**
Reliable real time processing of sensor data in embedded avionics computing systems
Period *Obligations*
06/16/87-07/07/89 FY88: \$89,882 TOTAL: \$168,137
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kearns, J. P. LARC/Sjogren, J. A. 22-Computer Science
Nicol, D. M.

NCC 1-43 **College of William And Mary** **5492**
Halogen occultation experiment (HALOE) science investigation
Period *Obligations*
08/01/80-12/31/89 FY88: \$65,607 TOTAL: \$435,140
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Benner, D. C. LARC/Sullivan, E. M. 31-Atmos Sci
LARC/Russell, J. M., III

NAG 1-824 **College of William And Mary** **5485**
Incremental assessment and improvement of software reliability
Period *Obligations*
01/16/88-01/15/89 FY88: \$39,970 TOTAL: \$39,970
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morrell, L. J. LARC/Liceaga, C. A. 29-Math/Computer, NEC

NCC 1-77 **College of William And Mary** **5493**
Computational investigations of heterogeneous processes
Period *Obligations*
03/01/83-10/31/88 FY88: TOTAL: \$81,325
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krakauer, H. LARC/Phillips, D. H. 19-Phys Sci, NEC

NAG 1-884 **College of William And Mary** **5486**
Toward a practical theory of ultra reliable software
Period *Obligations*
06/01/88-12/31/88 FY88: \$33,891 TOTAL: \$33,891
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, K. W. LARC/Eckhardt, D. E. 22-Computer Science
Noonan, R. E.
Morell, L. J.

NCC 1-80 **College of William And Mary** **5494**
High resolution spectroscopy to support atmospheric measurements
Period *Obligations*
07/07/83-03/31/89 FY88: \$69,996 TOTAL: \$337,190
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Benner, D. C. LARC/Smith, M. A. 13-Physics
Venkataraman, M. D. LARC/Rinsland, C. P.

NAG 1-894 **College of William And Mary** **5487**
Safety analysis of knowledge-based systems
Period *Obligations*
06/06/88-06/05/89 FY88: \$27,955 TOTAL: \$27,955
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morell, L. J. LARC/Johnson, S. C. 22-Computer Science

NCC 1-122 **College of William And Mary** **5495**
Automatic determination of Fault effects on aircraft functionality
Period *Obligations*
02/18/88-02/17/89 FY88: \$78,377 TOTAL: \$78,377
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feyock, S. LARC/Steinmetz, G. G. 22-Computer Science

NAG 1-896 **College of William And Mary** **5488**
Frequency dependent electromagnetic sensing for insitu monitoring of high performance thermoset and thermoplastic processing properties during cure
Period *Obligations*
07/01/88-08/31/89 FY88: \$82,800 TOTAL: \$82,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kranbuehl, D. E. LARC/Freeman, W. T. 12-Chemistry
LARC/Dexter, H. B.

NCC 1-126 **College of William And Mary** **5496**
The effects of the interaction of polymeric materials with the space environment
Period *Obligations*
06/16/88-06/15/89 FY88: \$12,026 TOTAL: \$12,026
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiefer, R. L. LARC/Long, S. T. 12-Chemistry
Orwoll, R. A.

NAG 1-906 **College of William And Mary** **5489**
Collision detection testbed
Period *Obligations*
08/23/88-08/22/89 FY88: \$55,973 TOTAL: \$55,973
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bynum, W. L. LARC/Sliwa, N. E. 22-Computer Science

NGT 00-050-052 **College of William And Mary** **5497**
NASA graduate student researchers program
Period *Obligations*
08/16/86-08/15/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, K. HQ-LE/Owens, F. C. 22-Computer Science

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NGT 00-050-111 College of William And Mary 5498
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Park, S. K. HQ-LE/Owens, F. C. 22-Computer Science

NGT 00-050-117 College of William And Mary 5499
 NASA graduate student researchers program
Period Obligations
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
 Park, S. K. HQ-LE/Owens, F. C. 22-Computer Science

NGT 00-070-091 College of William And Mary 5500
 Graduate student researchers underrepresented minority focus program
Period Obligations
 06/01/88-05/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Kiefer, R. HQ-XE/Owens, F. C. 12-Chemistry
 Orwoll, R.

NAG 2-343 Estrn Va Med Schi-Estrn Va Med Authority 5501
 Effects of weightlessness on aurelia ephyra differentiation
Period Obligations
 01/01/85-10/31/88 FY88: \$71,000 TOTAL: \$201,475
Prin. Invest. NASA Tech. Officer CASE Category
 Spangenberg, D. B. ARC/Winget, C. M. 51-Biological Sci

NAG 2-508 Estrn Va Med Schi-Estrn Va Med Authority 5502
 Effect of weightlessness on aurelia ephyra differentiation
Period Obligations
 03/01/88-02/28/89 FY88: \$15,000 TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
 Spangenberg, D. B. ARC/Winget, C. W. 51-Biological Sci
 ARC/Ballard, R. W.

NAG 5-724 George Mason University 5503
 Temporal ultraviolet-line profits variations in peculine nova-like stars
Period Obligations
 01/01/86-12/31/88 FY88: \$5,526 TOTAL: \$12,124
Prin. Invest. NASA Tech. Officer CASE Category
 Kafatos, M. GSFC/Kondo, Y. 11-Astronomy
 Michalitsianos, A. G.

NAGW 1229 George Mason University 5504
 The fourth George Mason fall workshop in astrophysics supernova 1987A
 in the large magellanic cloud
Period Obligations
 10/01/87-09/30/89 FY88: TOTAL: \$16,011
Prin. Invest. NASA Tech. Officer CASE Category
 Kafatos, M. HQ-EZ/Kaluzienski, L. 11-Astronomy
 HQ-EZ/Buner, A. N.

NAG 1-400 Hampton University 5505
 Advanced solar energetics
Period Obligations
 09/01/83-11/15/88 FY88: \$134,839 TOTAL: \$740,012
Prin. Invest. NASA Tech. Officer CASE Category
 Venable, D. D. LARC/Meador, W. E. 13-Physics
 LARC/Lee, J. H.

NAG 1-441 Hampton University 5506
 Direct solar pumped iodine laser amplifier
Period Obligations
 03/01/84-02/28/89 FY88: \$77,940 TOTAL: \$342,919
Prin. Invest. NASA Tech. Officer CASE Category
 Han, K. S. LARC/Costen, R. C. 13-Physics
 Hwang, T. H. LARC/Meador, W. E.

NAG 1-450 Hampton University 5507
 Architectural design of a continuously manned space station individual
 and total architectural configuration
Period Obligations
 02/01/84-10/31/86 FY88: TOTAL: \$282,598
Prin. Invest. NASA Tech. Officer CASE Category
 Spencer, J. H. LARC/Hall, J. B., Jr. 49-Engr, NEC
 Northen, O. LARC/Perner, C. D.

NAG 1-477 Hampton University 5508
 Electron transport and charge buildup in multi layered configurations
Period Obligations
 09/01/84-12/31/88 FY88: \$35,347 TOTAL: \$162,334
Prin. Invest. NASA Tech. Officer CASE Category
 Buck, W. LARC/Townsend, L. W. 13-Physics
 LARC/Meador, W. E.

NAG 1-628 Hampton University 5509
 Chemical pre vaporization for a hydrocarbon-fueled scramjet
Period Obligations
 01/01/86-12/31/87 FY88: \$116,106 TOTAL: \$116,106
Prin. Invest. NASA Tech. Officer CASE Category
 Yates, C. L. LARC/Northam, G. B. 41-Aero Engr
 LARC/Anderson, G. Y.

NAG 1-656 Hampton University 5510
 Development of proton transport methods
Period Obligations
 03/06/86-06/30/89 FY88: \$17,402 TOTAL: \$60,122
Prin. Invest. NASA Tech. Officer CASE Category
 Buck, W. W. LARC/Wilson, J. W. 13-Physics
 LARC/Slemp, W. S.

NAG 1-666 Hampton University 5511
 Modeline and optimization study for space borne titanium doped sapphire
 laser system
Period Obligations
 06/01/86-05/31/89 FY88: \$65,904 TOTAL: \$178,710
Prin. Invest. NASA Tech. Officer CASE Category
 Farrukh, U. O. LARC/Brockman, P. 13-Physics

NAG 1-760 Hampton University 5512
 The shape preserving interpolants using symbolic computation
Period Obligations
 05/14/87-10/31/88 FY88: TOTAL: \$40,460
Prin. Invest. NASA Tech. Officer CASE Category
 Lam, M. LARC/Smith, R. E. 21-Mathematics
 LARC/Shoosmith, J. N.

NAG 1-767 Hampton University 5513
 Evaluation of on board hydrogen storage methods for high speed
 aircraft
Period Obligations
 05/01/87-02/28/89 FY88: \$100,595 TOTAL: \$160,955
Prin. Invest. NASA Tech. Officer CASE Category
 Adeyiga, A. LARC/Northam, G. B. 43-Chem Engr
 Akyurtle, A. LARC/Pellet, G. L.
 Akyurtle, J. F.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 1-768	Hampton University	5514	Auto regressive representation for harmonis table processes <i>Period</i> 06/01/87-05/31/89 <i>Prin. Invest.</i> Miami, A. G.	<i>Obligations</i> FY88: \$52,960 NASA Tech. Officer LARC/Hardin, J. C.	TOTAL: \$101,803 <i>CASE Category</i> 21-Mathematics
NCA 1-75	Hampton University	5522	Summer program 10 students <i>Period</i> 05/15/88-07/15/88 <i>Prin. Invest.</i> Bowman, A.	<i>Obligations</i> FY88: \$25,000 NASA Tech. Officer LARC/Smith, B.	TOTAL: \$25,000 <i>CASE Category</i> 99-Multi-Discip
NAG 1-789	Hampton University	5515	Graphics applications utilizing parallel processing <i>Period</i> 09/01/87-12/31/88 <i>Prin. Invest.</i> Walker, R. L.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Hogge, J. E. LARC/Lansing, D. L.	TOTAL: \$53,662 <i>CASE Category</i> 29-Math/Cmputer,NEC
NCC 1-125	Hampton University	5523	Air traffic control simulation <i>Period</i> 06/02/88-05/31/89 <i>Prin. Invest.</i> Armstrong, H. B.	<i>Obligations</i> FY88: \$55,000 NASA Tech. Officer LARC/Bergeron, H. P. LARC/Credeur, L.	TOTAL: \$55,000 <i>CASE Category</i> 41-Aero Engr
NAG 1-827	Hampton University	5516	Quantitative measurement and analysis of optical constants <i>Period</i> 10/23/87-10/22/88 <i>Prin. Invest.</i> Lowe, C.	<i>Obligations</i> FY88: \$156,821 NASA Tech. Officer LARC/Barnes, J. C. LARC/Williams, J. B.	TOTAL: \$156,821 <i>CASE Category</i> 13-Physics
NGT 00-050-344	Hampton University	5524	NASA graduate student researchers program <i>Period</i> 08/01/88-07/31/89 <i>Prin. Invest.</i> Buck, W. W.	<i>Obligations</i> FY88: \$18,000 NASA Tech. Officer HQ-XE/Owens, F. C.	TOTAL: \$18,000 <i>CASE Category</i> 13-Physics
NGT 47-020-800	Hampton University	5525	Summer faculty fellowship program in research <i>Period</i> 01/01/82-03/31/89 <i>Prin. Invest.</i> Spencer, J. W.	<i>Obligations</i> FY88: \$342,044 NASA Tech. Officer HQ-XE/McGee, A. S. HQ-XE/Schwartz, E. T.	TOTAL: \$1,351,190 <i>CASE Category</i> 49-Engr, NEC
NAG 1-877	Hampton University	5517	Mid infrared solid state lasers for spaceborne lidar <i>Period</i> 04/13/88-04/12/89 <i>Prin. Invest.</i> Whitney, D. A.	<i>Obligations</i> FY88: \$84,568 NASA Tech. Officer LARC/Hess, R. V.	TOTAL: \$84,568 <i>CASE Category</i> 13-Physics
NAG 1-904	Hampton University	5518	Implications of pressure diffusion for shock waves <i>Period</i> 08/01/88-07/31/89 <i>Prin. Invest.</i> Ram, R. B.	<i>Obligations</i> FY88: \$108,224 NASA Tech. Officer LARC/Harvey, W. D.	TOTAL: \$108,224 <i>CASE Category</i> 41-Aero Engr
NAG 1-905	Hampton University	5519	Synthesis of monomers with pendent ethynyl groups for modified high performance thermoplastics <i>Period</i> 09/01/88-08/31/89 <i>Prin. Invest.</i> Nwokogu, G.	<i>Obligations</i> FY88: \$50,000 NASA Tech. Officer LARC/Hergenrother, P. M. LARC/Connell, J. W.	TOTAL: \$50,000 <i>CASE Category</i> 12-Chemistry
NAG 5-929	Hampton University	5520	Cosmic ray induced single event upset phenomone in semiconductor devices <i>Period</i> 06/15/87-06/30/89 <i>Prin. Invest.</i> Venable, D. D.	<i>Obligations</i> FY88: \$320,391 NASA Tech. Officer GSFC/Stassinopoulos, E. G., III	TOTAL: \$590,391 <i>CASE Category</i> 31-Atmos Sci
NCA 1-63	Hampton University	5521	Continuing summer student training program in engineering <i>Period</i> 05/13/85-05/12/88 <i>Prin. Invest.</i> Bowman, W.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Heath, R. A.	TOTAL: \$25,000 <i>CASE Category</i> 41-Aero Engr
NAG 1-627	Longwood College	5526	Flow in compounds that model crystal growth in bridgman furnaces <i>Period</i> 01/01/86-12/31/88 <i>Prin. Invest.</i> Barber, P. G.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Fripp, A. L.	TOTAL: \$123,261 <i>CASE Category</i> 47-Materials Engr
NAG 3-794	Mary Washington College	5527	Synthesis of new diamine and dianhydride monomers for thermo oxidatively stable polyimides <i>Period</i> 06/01/87-05/30/89 <i>Prin. Invest.</i> Gratz, R. F.	<i>Obligations</i> FY88: \$19,723 NASA Tech. Officer LERC/Alston, W. B. LERC/Delvigs, P.	TOTAL: \$38,368 <i>CASE Category</i> 12-Chemistry
NAG 1-764	Norfolk State University	5528	Solution of elliptic partial differential equations on a multiprocessing system using ADA language <i>Period</i> 04/15/87-05/31/89 <i>Prin. Invest.</i> Shah, S. N.	<i>Obligations</i> FY88: \$65,750 NASA Tech. Officer LARC/Lambiotte, J. J. LARC/Shoosmith, J. N.	TOTAL: \$118,340 <i>CASE Category</i> 29-Math/Cmputer,NEC
NAG 1-845	Norfolk State University	5529	Spectroscopic analysis and characterization of the optical properties of group I III vi2 linea K inse 2 crystals <i>Period</i> 02/01/88-01/31/89 <i>Prin. Invest.</i> Miller, G. E.	<i>Obligations</i> FY88: \$145,062 NASA Tech. Officer LARC/Barnes, J. C.	TOTAL: \$145,062 <i>CASE Category</i> 13-Physics

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NCC 1-115 Norfolk State University 5530
13c carbon nuclear magnetic resonance analysis of the effects of electron radiation on graphite polyetherimide composites
Period Obligations
04/01/87-09/30/88 FY88: TOTAL: \$54,937
Prin. Invest. NASA Tech. Officer CASE Category
Ferguson, M. W. LARC/Long, S. T. 13-Physics
Mattix, L.

NAG 1-148 Old Dominion University 5531
A theoretical study of photovoltaic convectors growth
Period Obligations
02/01/81-05/15/87 FY88: TOTAL: \$230,230
Prin. Invest. NASA Tech. Officer CASE Category
Heinbockel, J. H. LARC/Walker, G. H. 47-Materials Engr
LARC/Conway, E. J.

NAG 1-301 Old Dominion University 5532
Component mode synthesis and large deflection vibrations of complex structures
Period Obligations
11/01/82-01/31/87 FY88: TOTAL: \$198,043
Prin. Invest. NASA Tech. Officer CASE Category
Mei, C. LARC/Walz, J. F. 46-Mech Engr
LARC/Housner, J. M.

NAG 1-336 Old Dominion University 5533
Passive damping concepts for space structures with natural or forced vibrations
Period Obligations
02/01/83-09/30/89 FY88: TOTAL: \$83,882
Prin. Invest. NASA Tech. Officer CASE Category
Razzaq, Z. LARC/Bush, H. G. 49-Engr, NEC
LARC/Mikulas, M. M., Jr.

NAG 1-363 Old Dominion University 5534
Institute for computational and applied mechanics (ICAM)
Period Obligations
05/16/83-12/31/88 FY88: \$66,000 TOTAL: \$485,133
Prin. Invest. NASA Tech. Officer CASE Category
Tiwari, S. N. LARC/Massenberg, S. E. 41-Aero Engr
LARC/Prior, E. J.

NAG 1-423 Old Dominion University 5535
Analysis and computation of internal flow field in a scramjet engine
Period Obligations
10/19/83-01/14/89 FY88: \$32,816 TOTAL: \$136,499
Prin. Invest. NASA Tech. Officer CASE Category
Tiwari, S. N. LARC/Kumar, A. 41-Aero Engr
LARC/Dwoyer, D. L.

NAG 1-438 Old Dominion University 5536
Computational structural mechanics: Stress and postbuckling analysis procedures for composites using concurrent processing
Period Obligations
12/19/83-03/31/88 FY88: TOTAL: \$98,244
Prin. Invest. NASA Tech. Officer CASE Category
Razzaq, Z. LARC/Storaasli, O. O. 46-Mech Engr
LARC/Bostic, S. W.

NAG 1-439 Old Dominion University 5537
Use of executable specifications machine learning theorem proving and knowledge based techniques in automated analysis of software specifications for production of highly reliable computer systems
Period Obligations
01/16/84-12/31/88 FY88: \$73,520 TOTAL: \$294,161
Prin. Invest. NASA Tech. Officer CASE Category
Wild, C. D. LARC/Eckhardt, D. E., Jr. 22-Computer Science

NAG 1-529 Old Dominion University 5538
Three-dimensional finite-element analysis of fatigue crack propagation
Period Obligations
11/01/84-10/31/87 FY88: TOTAL: \$100,824
Prin. Invest. NASA Tech. Officer CASE Category
Cupschalk, S. LARC/Newman, J. C., Jr. 46-Mech Engr
LARC/Crews, J. H.

NAG 1-530 Old Dominion University 5539
Investigation of the stability of large vortices
Period Obligations
11/01/84-10/31/88 FY88: \$121,441 TOTAL: \$332,225
Prin. Invest. NASA Tech. Officer CASE Category
Ash, R. L. LARC/Anders, J. B. 41-Aero Engr
Grosch, C. E.

NAG 1-561 Old Dominion University 5540
Cure cycle optimization in thick composite laminate processing by a semi empirical approach
Period Obligations
01/15/85-04/14/87 FY88: TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Hou, J. W. LARC/Baucom, R. M. 12-Chemistry
LARC/Freeman, W. T.

NAG 1-569 Old Dominion University 5541
Chemoviscosity modeling of thermosetting resins
Period Obligations
02/01/85-01/31/89 FY88: \$101,553 TOTAL: \$195,853
Prin. Invest. NASA Tech. Officer CASE Category
Tiwari, S. N. LARC/Baucom, R. M. 12-Chemistry
LARC/Johnston, N. J.

NAG 1-576 Old Dominion University 5542
Stability of the corner boundary layer problem including the effects of spanwise variations suction and rounded corners
Period Obligations
04/01/85-03/31/87 FY88: TOTAL: \$46,472
Prin. Invest. NASA Tech. Officer CASE Category
Lakin, W. D. LARC/Dagenhart, J. R. 41-Aero Engr

NAG 1-596 Old Dominion University 5543
Computational solution of chemistry problems
Period Obligations
10/01/85-06/30/88 FY88: TOTAL: \$157,778
Prin. Invest. NASA Tech. Officer CASE Category
Ake, R. L. LARC/Phillips, D. H. 12-Chemistry
Jafri, J. A.

NAG 1-626 Old Dominion University 5544
Airborne radar technology for wind shear detection
Period Obligations
12/01/85-08/31/88 FY88: TOTAL: \$121,312
Prin. Invest. NASA Tech. Officer CASE Category
Hibey, J. L. LARC/Staton, L. D. 45-Elec Engr
LARC/Bracalente, E. M.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 1-633 Old Dominion University 5545
Development of a numerical method for solving the three-dimensional viscous and inviscid transonic flow equations
Period Obligations
02/15/86-11/14/88 FY88: \$51,073 TOTAL: \$126,852
Prin. Invest. NASA Tech. Officer CASE Category
Von Lavante, E. LARC/Salas, M. D. 41-Aero Engr
LARC/Keller, J. D.

NAG 1-735 Old Dominion University 5553
New devices for flow measurements hot film and buried wire sensors infrared imagery liquid crystal and piezo electric methods
Period Obligations
01/05/87-09/30/88 FY88: \$100,000 TOTAL: \$203,816
Prin. Invest. NASA Tech. Officer CASE Category
McCree, G. J. LARC/Holmes, H. K. 45-Elec Engr
Roberts, A. S. LARC/Carraway, D. L.
Albin, S.

NAG 1-648 Old Dominion University 5546
Unsteady hybrid vortex technique for transonic vortex flows and flutter applications
Period Obligations
02/16/86-01/14/89 FY88: \$66,759 TOTAL: \$178,386
Prin. Invest. NASA Tech. Officer CASE Category
Kandil, O. A. LARC/Bland, S. R. 41-Aero Engr
LARC/Whitlow, W.

NAG 1-736 Old Dominion University 5554
Guidance and control strategies for aerospace vehicles
Period Obligations
01/01/87-12/31/88 FY88: \$80,000 TOTAL: \$155,355
Prin. Invest. NASA Tech. Officer CASE Category
Hibey, J. L. LARC/Price, D. B. 41-Aero Engr
Naidu, D. S. LARC/Moeroer, D. D.

NAG 1-655 Old Dominion University 5547
Modal state estimator for flexible structures
Period Obligations
03/01/86-12/31/87 FY88: TOTAL: \$55,000
Prin. Invest. NASA Tech. Officer CASE Category
Huang, J. K. LARC/Juang, J. N. 42-Astro Engr
LARC/Horta, L. G.

NAG 1-744 Old Dominion University 5555
Realibility assessment methods for multiversion software
Period Obligations
02/04/87-09/30/87 FY88: TOTAL: \$15,437
Prin. Invest. NASA Tech. Officer CASE Category
Lee, L. D. LARC/Eckhardt, D. E. 21-Mathematics

NAG 1-664 Old Dominion University 5548
A computational investigation of supersonic aerodynamic interference effects of store separation from a cavity
Period Obligations
05/16/86-05/15/89 FY88: \$76,450 TOTAL: \$213,203
Prin. Invest. NASA Tech. Officer CASE Category
Baysal, O. LARC/Stallings, R. L., Jr. 41-Aero Engr
LARC/Miller, D. S.

NAG 1-750 Old Dominion University 5556
Software reliability studies equivalence classes
Period Obligations
04/01/87-03/31/89 FY88: \$43,383 TOTAL: \$73,386
Prin. Invest. NASA Tech. Officer CASE Category
Wilson, L. LARC/Dotson, K. J. 29-Math/Computer, NEC
LARC/Finelli, G. B.

NAG 1-683 Old Dominion University 5549
Strategies for concurrent processing of complex algorithms in data driven architectures
Period Obligations
06/01/86-05/15/89 FY88: \$89,705 TOTAL: \$249,705
Prin. Invest. NASA Tech. Officer CASE Category
Stoughton, J. W. LARC/Hayes, P. J. 45-Elec Engr
Mielke, R. R.

NAG 1-757 Old Dominion University 5557
Theoretical studies on solar lasers and converters
Period Obligations
05/16/87-05/15/89 FY88: \$49,494 TOTAL: \$97,999
Prin. Invest. NASA Tech. Officer CASE Category
Heinbockel, J. H. LARC/Costen, R. C. 13-Physics
LARC/Meador, W. E.

NAG 1-704 Old Dominion University 5550
Mathematical modeling of a ti: Sapphire solid state laser
Period Obligations
10/01/86-05/15/87 FY88: TOTAL: \$12,728
Prin. Invest. NASA Tech. Officer CASE Category
Swetits, J. J. LARC/Byvik, C. E. 13-Physics
LARC/Hess, R. V.

NAG 1-773 Old Dominion University 5558
Wave interactions in supersonic and hypersonic flows
Period Obligations
05/01/87-09/30/88 FY88: TOTAL: \$27,847
Prin. Invest. NASA Tech. Officer CASE Category
Lakin, W. D. LARC/Ertebacher, G. 41-Aero Engr

NAG 1-716 Old Dominion University 5551
Wind tunnel magnetic suspension and balance systems
Period Obligations
11/16/86-09/30/89 FY88: \$61,800 TOTAL: \$117,206
Prin. Invest. NASA Tech. Officer CASE Category
Britcher, C. P. LARC/Boyden, R. P. 41-Aero Engr
LARC/Kilgore, R. A.

NAG 1-791 Old Dominion University 5559
Diamond film growth and properties
Period Obligations
07/06/87-07/05/89 FY88: \$65,000 TOTAL: \$114,705
Prin. Invest. NASA Tech. Officer CASE Category
Albin, S. LARC/Byvik, C. E. 13-Physics
Lakdawala, V. K. LARC/Hess, R. V.

NAG 1-729 Old Dominion University 5552
Development of disturbances in swept wing flows
Period Obligations
12/01/86-04/15/88 FY88: \$28,000 TOTAL: \$101,806
Prin. Invest. NASA Tech. Officer CASE Category
Kandil, O. A. LARC/Dagenhart, J. R. 29-Math/Computer, NEC
El Hady, N. M. LARC/Somers, D. M.

NAG 1-811 Old Dominion University 5560
Navier-Stokes analysis of cold scramjet afterbody flows
Period Obligations
09/01/87-08/15/89 FY88: \$69,852 TOTAL: \$94,435
Prin. Invest. NASA Tech. Officer CASE Category
Baysal, O. LARC/Pittman, J. L. 19-Phys Sci, NEC
LARC/Miller, D. S.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 1-830	Old Dominion University	5561	Modal state estimation and reliable controller design for flexible structures
<i>Period</i>	<i>Obligations</i>		
12/01/87-11/30/88	FY88: \$100,136	TOTAL: \$100,136	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Huang, J. K.	LARC/Juang, J. N.	42-Astro Engr	
Ghaemmaghmi, P.	LARC/Cooley, V.		
NAG 1-835	Old Dominion University	5562	Probability models and statistical inference methods for testing multiple software versions
<i>Period</i>	<i>Obligations</i>		
01/01/88-12/31/88	FY88: \$49,883	TOTAL: \$49,883	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lee, L. D.	LARC/Eckhardt, D. E.	21-Mathematics	
NAG 1-838	Old Dominion University	5563	Prediction of response of aircraft panels to acoustic and thermal loads
<i>Period</i>	<i>Obligations</i>		
12/16/87-12/15/88	FY88: \$79,906	TOTAL: \$79,906	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Mei, C.	LARC/Mixson, J. S.	41-Aero Engr	
Ash, R.	LARC/Powell, C. A.		
NAG 1-846	Old Dominion University	5564	Analysis and mitigation of numerical dissipation in inviscid and viscous computations of vortex dominated flows
<i>Period</i>	<i>Obligations</i>		
02/01/88-09/30/88	FY88: \$25,180	TOTAL: \$25,180	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kandil, O. A.	LARC/Liu, C. H.	41-Aero Engr	
	LARC/Thomas, J. L.		
NAG 1-858	Old Dominion University	5565	Parallel procedures for statics eigen value analysis and structural dynamics
<i>Period</i>	<i>Obligations</i>		
03/01/88-02/28/89	FY88: \$21,188	TOTAL: \$21,188	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Nguyen, D. T.	LARC/Storaasli, O. O.	44-Civil Engr	
	LARC/Ransom, J. B.		
NAG 1-881	Old Dominion University	5566	Instability and noise propagation in supersonic jets
<i>Period</i>	<i>Obligations</i>		
06/01/88-05/31/89	FY88: \$54,996	TOTAL: \$54,996	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Lakin, W. D.	LARC/Pao, S. P.	41-Aero Engr	
NAG 1-902	Old Dominion University	5567	Evaluation and development of technologies for creation of reliable software
<i>Period</i>	<i>Obligations</i>		
08/16/88-08/15/89	FY88: \$8,605	TOTAL: \$8,605	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Overstreet, C. M.	LARC/Finelli, G. B.	29-Math/Computer, NEC	
NAG 1-908	Old Dominion University	5568	Extremely high data-rate reliable network systems research
<i>Period</i>	<i>Obligations</i>		
09/02/88-09/01/89	FY88: \$8,605	TOTAL: \$8,605	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Maly, K.	LARC/Murray, N. D.	22-Computer Science	
NAG 9-308	Old Dominion University	5569	An expert systems approach to automated maintenance for a generic system
<i>Period</i>	<i>Obligations</i>		
08/01/88-02/01/89	FY88: \$20,000	TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ash, R. L.	JSC/Roberts, B. B.	49-Engr, NEC	
Huang, J. K.			
NAS 1-17993	Old Dominion University	5570	Research in aerodynamics and related fields
<i>Period</i>	<i>Obligations</i>		
03/05/85-03/04/90	FY88: \$75,251	TOTAL: \$2,018,702	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kidd, C.	LARC/Maddrea, G. L.	41-Aero Engr	
NAS 1-18584	Old Dominion University	5571	Research effort in the areas of aerodynamics fluid mechanics instrumentation avionics computing and other related fields
<i>Period</i>	<i>Obligations</i>		
11/02/87-11/01/90	FY88: \$949,417	TOTAL: \$949,417	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Wolfson, B. E.	LARC/Prior, E. D.	41-Aero Engr	
	LARC/Massenberg, S. E.		
NAS 1-18687	Old Dominion University	5572	Passive damping augmentation for space manipulations
<i>Period</i>	<i>Obligations</i>		
05/10/88-05/09/90	FY88: \$116,000	TOTAL: \$116,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Alberts, T. E.	LARC/Clark, L. G.	42-Astro Engr	
	LARC/Pennington, J. E.		
NCC 1-28	Old Dominion University	5573	Application of advanced lidar techniques for atmospheric remote sensing
<i>Period</i>	<i>Obligations</i>		
12/15/79-12/31/86	FY88:	TOTAL: \$576,438	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Kindle, E. C.	LARC/Browell, E. V.	31-Atmos Sci	
Butler, C.	LARC/Carter, A. F.		
NCC 1-42	Old Dominion University	5574	A study of physical processes for space-radiation protection
<i>Period</i>	<i>Obligations</i>		
06/04/80-05/15/89	FY88: \$77,000	TOTAL: \$584,533	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Khandelwal, G. S.	LARC/Townsend, L. W.	13-Physics	
	LARC/Meador, W. E.		
NCC 1-68	Old Dominion University	5575	Numerical solutions of three-dimensional Navier-Stokes equations for closed-bluff bodies
<i>Period</i>	<i>Obligations</i>		
06/01/82-12/31/88	FY88: \$56,530	TOTAL: \$210,397	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tiwari, S. N.	LARC/Smith, R. E., Jr.	41-Aero Engr	
Abolhassani, J. S.	LARC/Shoosmith, J. N.		
Kathong, M.			
NCC 1-90	Old Dominion University	5576	Studies of molecular properties of polymeric materials
<i>Period</i>	<i>Obligations</i>		
11/01/84-10/31/88	FY88: \$33,977	TOTAL: \$127,997	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Harries, W. L.	LARC/Long, S. T.	13-Physics	
Ries, H. R.	LARC/Long, E. R.		

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NCC 1-94 Old Dominion University 5577
Space flight and experiment studies
Period Obligations
03/01/85-02/28/89 FY88: \$314,972 TOTAL: \$1,174,978
Prin. Invest. NASA Tech. Officer CASE Category
Brock, F. J. LARC/Melfi, L. T., Jr. 13-Physics
Hueser, J. E. LARC/Sutton, K.

NCC 1-99 Old Dominion University 5578
Geometric modeling for computer aided design
Period Obligations
06/16/85-09/30/89 FY88: \$74,009 TOTAL: \$278,465
Prin. Invest. NASA Tech. Officer CASE Category
Schwing, J. L. LARC/Rehder, J. J. 22-Computer Science
LARC/McMillin, M. L.

NCC 1-120 Old Dominion University 5579
Signal processing techniques for ambulatory fetal heart rate monitoring
Period Obligations
01/16/88-01/15/89 FY88: \$38,000 TOTAL: \$38,000
Prin. Invest. NASA Tech. Officer CASE Category
Stoughton, J. W. LARC/Gray, D. L. 45-Elec Engr

NCC 1-121 Old Dominion University 5580
Navier-Stokes calculations of three-dimensional transonic cavity flow fields
Period Obligations
01/16/88-08/31/89 FY88: \$20,762 TOTAL: \$20,762
Prin. Invest. NASA Tech. Officer CASE Category
Baysal, O. LARC/Plentovich, E. B. 41-Aero Engr
LARC/Gloss, B. B.

NGR 47-003-052 Old Dominion University 5581
Graduate research program in aeronautics and air transportation
Period Obligations
05/12/71-08/31/86 FY88: TOTAL: \$838,922
Prin. Invest. NASA Tech. Officer CASE Category
Roberts, A. S., Jr. LARC/Massenberg, S. E. 41-Aero Engr

NGT 00-050-080 Old Dominion University 5582
NASA graduate student researchers program
Period Obligations
08/16/86-08/15/89 FY88: \$30,000 TOTAL: \$44,000
Prin. Invest. NASA Tech. Officer CASE Category
Stoughton, J. W. HQ-LE/Owens, F. C. 45-Elec Engr

NGT 00-050-115 Old Dominion University 5583
NASA graduate student researchers program
Period Obligations
06/01/87-08/14/89 FY88: \$18,000 TOTAL: \$34,500
Prin. Invest. NASA Tech. Officer CASE Category
Schoenbach, K. HQ-LE/Owens, F. C. 45-Elec Engr

NGT 00-050-118 Old Dominion University 5584
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Albin, S. HQ-LE/Owens, F. C. 45-Elec Engr

NGT 00-050-120 Old Dominion University 5585
NASA graduate student researchers program
Period Obligations
06/01/87-05/31/89 FY88: TOTAL: \$17,800
Prin. Invest. NASA Tech. Officer CASE Category
Coates, G. D. HQ-LE/Owens, F. C. 69-Psych, NEC

NGT 00-050-260 Old Dominion University 5586
NASA graduate student researchers program
Period Obligations
08/16/88-08/15/89 FY88: \$14,956 TOTAL: \$14,956
Prin. Invest. NASA Tech. Officer CASE Category
Britcher, C. P. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-050-346 Old Dominion University 5587
NASA graduate student researchers program
Period Obligations
09/01/88-08/31/89 FY88: \$15,750 TOTAL: \$15,750
Prin. Invest. NASA Tech. Officer CASE Category
Swits, J. HQ-XE/Owens, F. C. 21-Mathematics

NGT 00-070-020 Old Dominion University 5588
NASA graduate student researchers program
Period Obligations
05/01/87-04/30/89 FY88: \$17,885 TOTAL: \$35,669
Prin. Invest. NASA Tech. Officer CASE Category
Mei, C. HQ-XE/Owens, F. C. 46-Mech Engr

NGT 00-070-058 Old Dominion University 5589
NASA graduate student researchers program
Period Obligations
08/15/87-08/14/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Brown, K. G. HQ-XE/Owens, F. C. 39-Env Sci, NEC

NGT 00-070-059 Old Dominion University 5590
NASA graduate student researchers program
Period Obligations
10/01/87-08/14/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Stoughton, J. W. HQ-XE/Owens, F. C. 69-Psych, NEC

NGT 00-070-060 Old Dominion University 5591
NASA graduate student researchers program
Period Obligations
08/15/87-08/14/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Coates, G. D. HQ-XE/Owens, F. C. 99-Multi-Discip

NGT 47-003-029 Old Dominion University 5592
Summer faculty fellowship program in research
Period Obligations
11/14/69-03/31/88 FY88: TOTAL: \$2,469,560
Prin. Invest. NASA Tech. Officer CASE Category
Tiwari, S. HQ-LB/Owens, F. C. 49-Engr, NEC

NGT 47-003-803 Old Dominion University 5593
NASA graduate student researchers program
Period Obligations
05/16/85-05/15/88 FY88: TOTAL: \$48,715
Prin. Invest. NASA Tech. Officer CASE Category
Khandelwal, G. S. HQ-LE/Owens, F. C. 13-Physics

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NGT 47-003-804 Old Dominion University 5594
NASA graduate student researchers program
Period *Obligations*
09/01/85-08/31/88 FY88: \$13,950 TOTAL: \$40,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Swetits, J. HQ-LE/Owens, F. C. 29-Math/Computer, NEC

NSG 1321 Old Dominion University 5595
Concepts for structurally compatible thermal finite elements
Period *Obligations*
09/01/76-12/31/88 FY88: \$180,953 TOTAL: \$1,285,033
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thornton, E. A. LARC/Wieting, A. R. 49-Engr, NEC

NSG 1568 Old Dominion University 5596
Theoretical study of solar pumped lasers
Period *Obligations*
12/15/78-10/31/88 FY88: \$49,674 TOTAL: \$379,243
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harries, W. L. LARC/Jalufka, N. W. 13-Physics
LARC/Conway, E. J.

NAG 1-774 University of Richmond 5597
Design and implementation of a preprocessor for the ADA language to support the use of the multiway accept
Period *Obligations*
05/15/87-12/31/88 FY88: \$38,530 TOTAL: \$59,858
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Charlesworth, A. LARC/Holloway, C. M. 22-Computer Science

NAG 1-46 University of Virginia 5598
Numerical algorithms for finite element computations on arrays of microprocessors
Period *Obligations*
03/01/80-11/30/88 FY88: \$52,123 TOTAL: \$375,888
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ortega, J. M. LARC/Storaasli, O. O. 49-Engr, NEC
LARC/Bostic, S. W.

NAG 1-242 University of Virginia 5599
Research in computer science
Period *Obligations*
12/01/81-05/31/89 FY88: \$86,000 TOTAL: \$626,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ortega, J. M. LARC/Shoosmith, J. N. 22-Computer Science
LARC/Zang, T.

NAG 1-260 University of Virginia 5600
Implementation and use of ADA on distributed systems with high reliability requirements
Period *Obligations*
03/05/82-02/14/88 FY88: TOTAL: \$372,215
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knight, J. C. LARC/Holloway, C. M. 22-Computer Science
LARC/Voigt, S. J.

NAG 1-350 University of Virginia 5601
Stress effects in multilayers
Period *Obligations*
06/01/83-02/28/89 FY88: \$128,200 TOTAL: \$357,363
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jesser, W. A. ARC/Fripp, A. L. 47-Materials Engr
Orazem, M. E. LARC/Clark, I. O.

NAG 1-373 University of Virginia 5602
Flowfield measurements in a model scramjet combustor using laser-induced iodine fluorescence
Period *Obligations*
07/01/83-08/31/88 FY88: \$38,280 TOTAL: \$306,293
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McDaniel, J. C. LARC/Northam, G. B. 41-Aero Engr
LARC/Exton, R.

NAG 1-467 University of Virginia 5603
Methods for design and evaluation of integrated hardware/software systems for concurrent computation
Period *Obligations*
03/15/84-09/30/87 FY88: TOTAL: \$200,296
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pratt, T. W. LARC/Storaasli, O. O. 22-Computer Science
LARC/Bostic, S. W.

NAG 1-511 University of Virginia 5604
A second generation experiment in Fault tolerant software
Period *Obligations*
09/01/84-01/31/88 FY88: TOTAL: \$269,110
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knight, J. C. LARC/Eckhardt, D. E. 22-Computer Science

NAG 1-701 University of Virginia 5605
Electro optic modulation for carbon monoxide monitoring
Period *Obligations*
10/01/86-09/30/88 FY88: TOTAL: \$52,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gallagher, T. F. LARC/Sachse, G. W. 19-Phys Sci, NEC
LARC/Wallio, H. A.

NAG 1-745 University of Virginia 5606
Light alloy technology program in aluminum lithium alloys
Period *Obligations*
04/01/87-04/30/89 FY88: \$234,117 TOTAL: \$362,320
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilsdorf, H. G. LARC/Dicus, D. L. 47-Materials Engr
Stoner, G. E. LARC/Royster, D. M.

NAG 1-795 University of Virginia 5607
Supersonic combustion of hydrogen in air
Period *Obligations*
07/01/87-12/31/89 FY88: \$400,000 TOTAL: \$650,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McDaniel, J. C. LARC/Northam, G. B. 41-Aero Engr
LARC/Exton, R.

NAG 1-841 University of Virginia 5608
Out of plane gradients in laminated composite structures
Period *Obligations*
12/21/87-12/20/88 FY88: \$24,984 TOTAL: \$24,984
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herakovich, C. T. LARC/Starnes, J. H., Jr. 41-Aero Engr

NAG 1-848 University of Virginia 5609
Interpretation of the maps and aircraft measurements of the CO over the western hemisphere tropics
Period *Obligations*
02/01/88-01/31/89 FY88: \$16,425 TOTAL: \$16,425
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garstang, M. LARC/Reichle, H. G., Jr. 31-Atmos Sci
LARC/Connors, V. S.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 2-456	University of Virginia	5610	NAG 5-865	University of Virginia	5618
Basic gravitational reflexes in the larval frog			Microgravity nucleation and particle coagulation experiment support		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/87-11/30/87	FY88:	TOTAL: \$42,946	01/01/87-03/31/89	FY88: \$50,411	TOTAL: \$95,928
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chochran, S. L.	ARC/Ross, M. D.	51-Biological Sci	Lilleht, L. U.	GSFC/Nuth, J. A.	19-Phys Sci, NEC
	ARC/Holton, E. M.			GSFC/Allen, J. E.	
NAG 3-630	University of Virginia	5611	NAG 5-870	University of Virginia	5619
Computer communication networks for hierarchical control			Design of the primary pre and TRMM ground truth site		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/85-04/14/89	FY88: \$40,000	TOTAL: \$174,996	02/15/87-03/14/89	FY88: \$89,301	TOTAL: \$145,209
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weaver, A. C.	LERC/Delaat, J. C.	22-Computer Science	Garstang, M.	GSFC/Thiele, O. W.	31-Atmos Sci
Colvin, M. A.	LERC/Lorenzo, C. F.				
NAG 3-909	University of Virginia	5612	NAG 5-981	University of Virginia	5620
Magnetic actuators and suspension for space vibration control			An IUE stellar library for analysis of composite ultraviolet splites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/88-05/31/89	FY88: \$62,620	TOTAL: \$62,620	09/01/87-08/31/89	FY88: \$13,038	TOTAL: \$33,377
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Allaire, P. E.	LERC/Fleming, D. P.	46-Mech Engr	O'connell, R. W.	GSFC/Kondo, Y.	11-Astronomy
Lewis, D. W.	LERC/Brown, G. V.		Bohlin, R. C.		
Williams, R. D.			Burstein, D.		
NAG 5-256	University of Virginia	5613	NAG 5-1018	University of Virginia	5621
Nonthermal ultraviolet radiation in nearby compact radio sources			Forest ecoseptems dynamics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/82-01/31/89	FY88:	TOTAL: \$2,547	10/15/87-10/14/89	FY88: \$134,996	TOTAL: \$134,996
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
O'connell, R. W.	GSFC/Kondo, Y.	11-Astronomy	Shugart, H. H.	GSFC/Smith, J. A.	39-Env Sci, NEC
Puschell, J. L.					
Thuan, T. X.					
NAG 5-257	University of Virginia	5614	NAG 5-1035	University of Virginia	5622
Ultraviolet studies of strong nuclear radio sources in normal spiril galaxies			Spectra of late type dwarf stars of known abundance for stellar population models		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/82-09/30/89	FY88: \$16,990	TOTAL: \$62,514	02/01/88-09/30/89	FY88: \$28,299	TOTAL: \$28,299
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thuan, T. X.	GSFC/Kondo, Y.	11-Astronomy	O'connell, R. W.	GSFC/Kondo, Y.	11-Astronomy
			Burstein, D.		
			Wu, C. C.		
NAG 5-700	University of Virginia	5615	NAG 5-1059	University of Virginia	5623
Ultraviolet imaging telescope astronomical observations			Contentium processes in BL lacertoe objects		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/85-10/31/89	FY88:	TOTAL: \$322,384	08/01/88-07/31/89	FY88: \$14,847	TOTAL: \$14,847
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
O'Connell, R. W.	GSFC/Stecker, T. P.	11-Astronomy	Balbus, S.	GSFC/Kondo, Y.	11-Astronomy
	GSFC/Baker, G. R.				
NAG 5-712	University of Virginia	5616	NAG 8-657	University of Virginia	5624
Wiskerless diode research			The effects of latent heat release on synoptic to planetary scale wave		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/85-12/31/88	FY88:	TOTAL: \$89,323	08/01/87-07/31/88	FY88:	TOTAL: \$49,344
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mattauch, R. J.	GSFC/Bennett, C. L.	45-Elec Engr	Colucci, S. J.	MSFC/Kaufman, J. W.	39-Env Sci, NEC
NAG 5-838	University of Virginia	5617	NAGW 186	University of Virginia	5625
Observations of a selected near ultraviolet resign dwarf spectra for stellar population models			Sputtering effects on the Jovian satellites and rings		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/87	FY88:	TOTAL: \$6,095	04/15/81-10/31/88	FY88: \$32,000	TOTAL: \$272,889
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
O'Connell, R. W.	GSFC/Kondo, Y.	11-Astronomy	Johnson, R. E.	HQ-EL/Underwood, J.	32-Geological Sci
Burstein, D.				HQ-EL/Boyce, J. M.	
Wu, C. C.					

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAGW 461 University of Virginia 5626
 Ion collisions of importance in the Io plasma torus
Period *Obligations*
 09/01/83-11/30/88 FY88: \$28,839 TOTAL: \$127,546
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Johnson, R. E. HQ-EL/Fox, K. 31-Atmos Sci
 HQ-EL/Quaide, W. L.

NCA 2-255 University of Virginia 5634
 Operator characteristics for understanding dynamical displays capacities limitations and defaults
Period *Obligations*
 10/01/87-09/30/89 FY88: \$33,333 TOTAL: \$33,333
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Proffitt, D. R. ARC/Kaiser, M. K. 69-Psych, NEC

NAGW 764 University of Virginia 5627
 Emission processes and dynamics of hot gases in astrophysics
Period *Obligations*
 07/01/85-02/28/89 FY88: \$175,000 TOTAL: \$655,416
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Chevalier, R. A. HQ-ES/Mellott, M. M. 13-Physics
 HQ-EZ/Bunner, A. N.

NCC 1-106 University of Virginia 5635
 Convective transports over then Amazon basin
Period *Obligations*
 07/01/86-08/31/89 FY88: \$95,996 TOTAL: \$245,573
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Garstang, M. LARC/Drewry, J. W. 31-Atmos Sci
 LARC/Hoell, J. M.

NAGW 929 University of Virginia 5628
 Collisional dynamics of perturbed particle disks in the solar
Period *Obligations*
 07/01/86-03/31/89 FY88: \$11,014 TOTAL: \$60,002
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roberts, W. W. HQ-EL/Scott, D. H. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NGT 00-050-002 University of Virginia 5636
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-05/31/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Galloway, J. N. HQ-XE/Owens, F. C. 39-Env Sci, NEC

NAGW 947 University of Virginia 5629
 Using satellite measureable environmental parameters for extending models of ecological processes to large spatial scales
Period *Obligations*
 08/01/86-01/31/90 FY88: \$31,275 TOTAL: \$94,970
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shugart, H. H. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
 HQ-EE/Ruzek, M.

NGT 00-050-102 University of Virginia 5637
 NASA graduate student researchers program
Period *Obligations*
 06/01/86-05/31/89 FY88: \$18,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shugart, H. H. HQ-LE/Owens, F. C. 39-Env Sci, NEC

NAGW 1233 University of Virginia 5630
 Evolution of the calcium modulated proteins synthesis and evolution of the precursor calmodulin fold
Period *Obligations*
 11/01/87-10/31/88 FY88: \$43,415 TOTAL: \$43,415
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kretsinger, R. H. HQ-EB/Rummel, J. D. 51-Biological Sci

NGT 00-050-105 University of Virginia 5638
 NASA graduate student researchers program
Period *Obligations*
 09/01/86-08/31/89 FY88: \$36,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hudson, J. L. HQ-LE/Owens, F. C. 42-Astro Engr

NAS 1-16550 University of Virginia 5631
 Interplanetary dust experiment
Period *Obligations*
 01/07/81-12/31/91 FY88: TOTAL: \$138,057
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Singer, S. F. LARC/Jones, J. L. 31-Atmos Sci
 Stanley, J. E.

NGT 00-050-116 University of Virginia 5639
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pilkey, W. HQ-LE/Owens, F. C. 46-Mech Engr

NAS 5-24218 University of Virginia 5632
 Research study on mixer diodes for submillimeter applications
Period *Obligations*
 06/23/77-08/31/86 FY88: TOTAL: \$242,995
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mattauch, R. J. GSFC/Lamb, G. M. 49-Engr, NEC

NGT 00-050-125 University of Virginia 5640
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Inigo, R. M. HQ-XE/Owens, F. C. 45-Elec Engr

NCA 2-87 University of Virginia 5633
 Dynamic information processing
Period *Obligations*
 10/01/85-09/30/87 FY88: TOTAL: \$72,310
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Proffitt, D. R. ARC/Kaiser, M. K. 69-Psych, NEC

NGT 00-050-142 University of Virginia 5641
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McDaniel, J. C. HQ-XE/Owens, F. C. 41-Aero Engr

NGT 00-050-183 University of Virginia 5642
 NASA graduate student researchers program
Period *Obligations*
 06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$36,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dorning, J. J. HQ-XE/Owens, F. C. 13-Physics

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NGT 00-050-334 University of Virginia 5643
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Lilleleht, L. U. HQ-XE/Owens, F. C. 43-Chem Engr

NGT 00-050-343 University of Virginia 5644
 NASA graduate student researchers program
Period Obligations
 08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Pilkey, W. D. HQ-XE/Owens, F. C. 46-Mech Engr
 Haviland, J. K.

NGT 00-050-345 University of Virginia 5645
 NASA graduate student researchers program
Period Obligations
 09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Odum, W. E. HQ-XE/Owens, F. C. 12-Chemistry

NGT 00-070-051 University of Virginia 5646
 Graduate student researchers underrepresented minority focus program
Period Obligations
 09/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Ortega, J. M. HQ-XE/Owens, F. C. 22-Computer Science

NGT 00-070-052 University of Virginia 5647
 Graduate student researchers underrepresented minority focus program
Period Obligations
 09/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Ortega, J. M. HQ-XE/Owens, F. C. 22-Computer Science

NGT 00-070-063 University of Virginia 5648
 Graduate student researchers underrepresented minority focus program
Period Obligations
 10/01/87-08/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
 Gangloff, R. P. HQ-XE/Owens, F. C. 99-Multi-Discip

NSG 7572 University of Virginia 5649
 Study of layered deposits and paleoclimates on Mars
Period Obligations
 04/01/79-01/31/89 FY88: \$20,000 TOTAL: \$250,588
Prin. Invest. NASA Tech. Officer CASE Category
 Howard, A. D. HQ-EL/Underwood, J. R. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAG 1-239 Virginia Commonwealth University 5650
 Synthesis of thermally stable polypyrazoles, polyprimidines, and other heteroaromatic polymers
Period Obligations
 12/01/81-01/31/89 FY88: TOTAL: \$371,251
Prin. Invest. NASA Tech. Officer CASE Category
 Bass, R. G. LARC/Hergenrother, P. M. 12-Chemistry
 LARC/Johnston, N. J.

NAG 1-594 Virginia Commonwealth University 5651
 Preparation of neodymium (iii) liquid lasers
Period Obligations
 06/01/85-10/31/88 FY88: \$20,000 TOTAL: \$69,553
Prin. Invest. NASA Tech. Officer CASE Category
 Vallarino, L. M. HQ-/Williams, M. D. 12-Chemistry
 LARC/Deyoung, R. J.

NAG 1-672 Virginia Commonwealth University 5652
 Investigation of bis 3 4 dimethylenepyrrolidine polyarylene as high temperature reactive oligomers
Period Obligations
 04/16/86-03/31/89 FY88: \$42,821 TOTAL: \$122,821
Prin. Invest. NASA Tech. Officer CASE Category
 Ottenbrite, R. M. LARC/Johnston, N. J. 12-Chemistry
 LARC/Hergenrother, P. M.

NAG 1-695 Virginia Commonwealth University 5653
 Development of acoustic test apparatus for evaluation of the state of the human airways
Period Obligations
 08/16/86-08/15/89 FY88: TOTAL: \$52,000
Prin. Invest. NASA Tech. Officer CASE Category
 Patterson, J. L. LARC/Samos, J. 56-Medical Sciences
 LARC/Seiner, J. M.

NAGW 1178 Virginia Commonwealth University 5654
 Influences of weightless upon sympathetic
Period Obligations
 01/01/87-12/31/88 FY88: \$56,513 TOTAL: \$118,827
Prin. Invest. NASA Tech. Officer CASE Category
 Eckberg, D. L. HQ-EB/Sulzman, F. 56-Medical Sciences

NAS 9-16046 Virginia Commonwealth University 5655
 Influence of weightlessness upon automatic cardiovascular control
Period Obligations
 01/17/80-12/01/90 FY88: \$135,200 TOTAL: \$2,245,519
Prin. Invest. NASA Tech. Officer CASE Category
 Exkberg, D. L. JSC/Young, W. J. 59-Life Sci, NEC

NCC 1-87 Virginia Commonwealth University 5656
 Application of ultrasonic techniques in patients suffering trauma
Period Obligations
 09/01/84-04/30/88 FY88: TOTAL: \$90,000
Prin. Invest. NASA Tech. Officer CASE Category
 Marmarou, A. LARC/Yost, W. T. 56-Medical Sciences
 LARC/Cantrell, J. H., Jr.

NAG 9-102 Virginia Military Institute 5657
 Redox processes in synthetic lunar magmas
Period Obligations
 05/01/85-05/01/89 FY88: \$13,580 TOTAL: \$59,182
Prin. Invest. NASA Tech. Officer CASE Category
 Schreider, H. D. JSC/Browne, I. D. 19-Phys Sci, NEC

NAG 1-168 Va Polytechnic Inst & St Univ 5658
 Structural optimization for improved damage tolerance
Period Obligations
 09/01/81-12/15/88 FY88: \$127,015 TOTAL: \$461,598
Prin. Invest. NASA Tech. Officer CASE Category
 Haftka, R. T. LARC/Starnes, J. H., Jr. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

<p>NAG 1-224 Va Polytechnic Inst & St Univ 5659 Automated sizing of aerospace structures under multiple constraints <i>Period</i> <i>Obligations</i> 11/01/81-10/31/88 FY88: \$88,191 TOTAL: \$527,739 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Haftka, R. T. LARC/Adelman, H. M. 41-Aero Engr Hallauer, W. L.</p>	<p>NAG 1-521 Va Polytechnic Inst & St Univ 5667 X-ray photoelectron spectroscopy XPS analysis of polymeric materials exposed to space environment <i>Period</i> <i>Obligations</i> 09/19/84-08/31/88 FY88: TOTAL: \$27,181 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Wightman, J. P. LARC/Slemp, W. S. 49-Engr, NEC LARC/Sykes, G. F.</p>
<p>NAG 1-225 Va Polytechnic Inst & St Univ 5660 Identification and control of structures in space <i>Period</i> <i>Obligations</i> 11/01/81-01/31/89 FY88: \$57,192 TOTAL: \$326,779 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Meirovitch, L. LARC/Williams, J. P. 42-Astro Engr Barah, H. LARC/Montgomery, R. C.</p>	<p>NAG 1-537 Va Polytechnic Inst & St Univ 5668 Postbuckling and crippling of graphite-epoxy channel and zee section columns <i>Period</i> <i>Obligations</i> 11/01/84-05/31/89 FY88: \$23,423 TOTAL: \$132,106 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Johnson, E. R. LARC/Starnes, J. H., Jr. 41-Aero Engr</p>
<p>NAG 1-300 Va Polytechnic Inst & St Univ 5661 Fundamental approach to the sticking of insect residues to aircraft wings <i>Period</i> <i>Obligations</i> 12/16/82-05/31/88 FY88: TOTAL: \$175,422 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Eiss, N. S., Jr. LARC/Somers, D. M. 49-Engr, NEC Wightman, J. P. LARC/Johnston, N. J.</p>	<p>NAG 1-570 Va Polytechnic Inst & St Univ 5669 Position control of flexible beams w/root actuation <i>Period</i> <i>Obligations</i> 02/01/85-01/10/89 FY88: \$50,000 TOTAL: \$259,476 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Robertshaw, H. H. LARC/Horner, G. C. 46-Mech Engr</p>
<p>NAG 1-343 Va Polytechnic Inst & St Univ 5662 NASA materials science and engineering program <i>Period</i> <i>Obligations</i> 03/01/83-12/31/88 FY88: \$559,697 TOTAL: \$4,436,257 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Torgersen, P. E. LARC/Tenney, D. R. 47-Materials Engr LARC/Swann, R. T.</p>	<p>NAG 1-603 Va Polytechnic Inst & St Univ 5670 Interdisciplinary research on aeronautical and space vehicles <i>Period</i> <i>Obligations</i> 06/20/85-03/15/89 FY88: \$45,000 TOTAL: \$195,371 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Haftka, R. T. LARC/Adelman, H. M. 41-Aero Engr Grossman, B. Cliff, E. N.</p>
<p>NAG 1-390 Va Polytechnic Inst & St Univ 5663 An analytical investigation of synchrophasing as a means of aircraft interior noise control <i>Period</i> <i>Obligations</i> 09/15/83-01/14/89 FY88: \$80,116 TOTAL: \$431,046 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Fuller, C. R. LARC/Silcox, R. J. 41-Aero Engr LARC/Lester, H. C.</p>	<p>NAG 1-643 Va Polytechnic Inst & St Univ 5671 Optimum design of geodesically stiffened composite plates <i>Period</i> <i>Obligations</i> 03/16/86-06/15/89 FY88: \$20,521 TOTAL: \$64,007 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Gurdal, Z. LARC/Starnes, J. H. 41-Aero Engr LARC/Shuart, M. J.</p>
<p>NAG 1-446 Va Polytechnic Inst & St Univ 5664 Experimental study of the properties of surface pressure fluctuations for separating turbulent boundary layers <i>Period</i> <i>Obligations</i> 03/16/84-09/15/86 FY88: TOTAL: \$118,144 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Simpson, R. L. LARC/Brooks, T. F. 41-Aero Engr</p>	<p>NAG 1-673 Va Polytechnic Inst & St Univ 5672 Composite materials for rail transit systems <i>Period</i> <i>Obligations</i> 05/01/86-09/30/87 FY88: TOTAL: \$39,998 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Herakovich, C. T. LARC/Baucom, R. M. 49-Engr, NEC Griffin, O. H., Jr. LARC/Nelson, J. B. Gurdal, Z.</p>
<p>NAG 1-486 Va Polytechnic Inst & St Univ 5665 Experimental and analytical investigation of fan flow interaction with downstream struts <i>Period</i> <i>Obligations</i> 06/16/84-06/15/87 FY88: TOTAL: \$40,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Wing-fai Ng LARC/Schoenster, J. A. 41-Aero Engr O'Brien, W. F.</p>	<p>NAG 1-675 Va Polytechnic Inst & St Univ 5673 Development and verification of local global analysis techniques for laminated composites <i>Period</i> <i>Obligations</i> 06/16/86-12/15/88 FY88: \$54,347 TOTAL: \$110,489 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Griffin, O. H., Jr. LARC/Knight, N. F., Jr. 41-Aero Engr LARC/Stroud, W. J.</p>
<p>NAG 1-505 Va Polytechnic Inst & St Univ 5666 Integrated multi-disciplinary aircraft design <i>Period</i> <i>Obligations</i> 08/01/84-09/15/87 FY88: TOTAL: \$120,264 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Grossman, B. LARC/Richardson, P. F. 41-Aero Engr Haftka, R. J. LARC/Sobieslet, J.</p>	<p>NAG 1-714 Va Polytechnic Inst & St Univ 5674 The effects of surface imperfections on the stability of compressible flows <i>Period</i> <i>Obligations</i> 10/30/86-10/29/88 FY88: \$68,364 TOTAL: \$128,202 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Nayfeh, A. H. LARC/Holmes, B. J. 41-Aero Engr Ragab, S. A. LARC/Liu, C. H.</p>

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NAG 1-719	Va Polytechnic Inst & St Univ	5675	Evaluation of the IDCM actuator for the COFS I mast <i>Period</i> 12/16/86-12/15/87 <i>Prin. Invest.</i> Lindner, D. K.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Montgomery, R. C. LARC/Fontana, A.	<i>CASE Category</i> TOTAL: \$30,000 42-Astro Engr
NAG 1-749	Va Polytechnic Inst & St Univ	5676	The behavior of elastic anisotropic laminated composite flat structures subjected to deterministic and random loadings <i>Period</i> 07/01/87-06/30/89 <i>Prin. Invest.</i> Librescu, L.	<i>Obligations</i> FY88: \$51,484 NASA Tech. Officer LARC/Stein, M.	<i>CASE Category</i> TOTAL: \$99,307 41-Aero Engr
NAG 1-751	Va Polytechnic Inst & St Univ	5677	Turbulence measurements in high speed shear flows <i>Period</i> 04/01/87-07/31/88 <i>Prin. Invest.</i> Schetz, J. A. Walker, D. A. Ng, W. J.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Morrisette, E. L.	<i>CASE Category</i> TOTAL: \$75,000 41-Aero Engr
NAG 1-754	Va Polytechnic Inst & St Univ	5678	Low angle clutter research for airborne Doppler radar simulation applications <i>Period</i> 04/01/87-04/30/88 <i>Prin. Invest.</i> Brown, G. S.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Staton, L. D. LARC/Bracalente, E. M.	<i>CASE Category</i> TOTAL: \$49,730 45-Elec Engr
NAG 1-762	Va Polytechnic Inst & St Univ	5679	Application of pattern recognition techniques to the identification of aerospace acoustic sources <i>Period</i> 07/15/87-11/14/89 <i>Prin. Invest.</i> Fuller, C. R. O'Brien, W. F.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Chestnutt, D. LARC/Preisser, J. S.	<i>CASE Category</i> TOTAL: \$62,173 49-Engr, NEC
NAG 1-776	Va Polytechnic Inst & St Univ	5680	Computational fluid dynamics research in hypersonic flow <i>Period</i> 06/01/87-12/31/88 <i>Prin. Invest.</i> Walters, R. W. Grossman, B.	<i>Obligations</i> FY88: \$150,000 NASA Tech. Officer LARC/Rudy, D. H. LARC/Thomas, J. L.	<i>CASE Category</i> TOTAL: \$223,393 41-Aero Engr
NAG 1-780	Va Polytechnic Inst & St Univ	5681	Fiber waveguide sensors for intelligent materials <i>Period</i> 06/05/87-06/04/88 <i>Prin. Invest.</i> Claus, R. O.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Rogowski, R. S. LARC/Cantrell, J.	<i>CASE Category</i> TOTAL: \$40,000 45-Elec Engr
NAG 1-822	Va Polytechnic Inst & St Univ	5682	Helicopter fatigue research <i>Period</i> 09/30/87-12/31/88 <i>Prin. Invest.</i> Dowling, N. E.	<i>Obligations</i> FY88: NASA Tech. Officer LARC/Everett, R. A. LARC/Phillips, E. P.	<i>CASE Category</i> TOTAL: \$62,853 47-Materials Engr
NAG 1-831	Va Polytechnic Inst & St Univ	5683	Noncontact measurement of high temperature using optical fiber sensors <i>Period</i> 11/15/87-11/14/89 <i>Prin. Invest.</i> Claus, R. O. Pieper, R. J.	<i>Obligations</i> FY88: \$165,967 NASA Tech. Officer LARC/Brockman, P.	<i>CASE Category</i> TOTAL: \$165,967 13-Physics
NAG 1-840	Va Polytechnic Inst & St Univ	5684	Vibration suppression for the Cofs I mast and mini mast <i>Period</i> 01/15/88-01/14/89 <i>Prin. Invest.</i> Lindner, D. K.	<i>Obligations</i> FY88: \$39,512 NASA Tech. Officer LARC/Montgomery, R. C. LARC/Sparks, D. W.	<i>CASE Category</i> TOTAL: \$39,512 42-Astro Engr
NAG 1-843	Va Polytechnic Inst & St Univ	5685	High speed mixing studies <i>Period</i> 01/12/88-01/11/89 <i>Prin. Invest.</i> Schetz, J. A.	<i>Obligations</i> FY88: \$170,000 NASA Tech. Officer LARC/Anders, J. B.	<i>CASE Category</i> TOTAL: \$170,000 41-Aero Engr
NAG 1-859	Va Polytechnic Inst & St Univ	5686	Synthesis procedure for array feeds to improve radiation performance of large distorted reflector antennas <i>Period</i> 02/25/88-02/24/89 <i>Prin. Invest.</i> Stutzman, W. L.	<i>Obligations</i> FY88: \$59,841 NASA Tech. Officer LARC/Bailey, M. C. LARC/Campbell, T. G.	<i>CASE Category</i> TOTAL: \$59,841 45-Elec Engr
NAG 1-866	Va Polytechnic Inst & St Univ	5687	Computational fluid dynamics research in three-dimensional techniques <i>Period</i> 03/16/88-03/15/89 <i>Prin. Invest.</i> Walters, R. W.	<i>Obligations</i> FY88: \$40,209 NASA Tech. Officer LARC/Thomas, J. L. LARC/Rumsey, C. L.	<i>CASE Category</i> TOTAL: \$40,209 41-Aero Engr
NAG 1-873	Va Polytechnic Inst & St Univ	5688	High alpha feedback control for agile half-loop maneuvers of the F 18 airplane <i>Period</i> 04/01/88-12/31/88 <i>Prin. Invest.</i> Stafford, H. L.	<i>Obligations</i> FY88: \$25,000 NASA Tech. Officer LARC/Arbuckle, P. D. LARC/Gracey, C.	<i>CASE Category</i> TOTAL: \$25,000 41-Aero Engr
NAG 1-895	Va Polytechnic Inst & St Univ	5689	Optical fiber sensors and signal processing for intelligent structure monitoring <i>Period</i> 06/15/88-06/14/89 <i>Prin. Invest.</i> Claus, R. O.	<i>Obligations</i> FY88: \$40,000 NASA Tech. Officer LARC/Rogowski, R. S. LARC/Cantrell, J. H.	<i>CASE Category</i> TOTAL: \$40,000 45-Elec Engr
NAG 1-901	Va Polytechnic Inst & St Univ	5690	Innovative design of composite structures <i>Period</i> 08/16/88-08/15/89 <i>Prin. Invest.</i> Hyer, M. W.	<i>Obligations</i> FY88: \$49,999 NASA Tech. Officer LARC/Nemeth, M. P.	<i>CASE Category</i> TOTAL: \$49,999 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 2-256	Va Polytechnic Inst & St Univ	5691			
Real jet effects on dual jets in a crossflow					
<i>Period</i>		<i>Obligations</i>			
10/01/83-07/31/87	FY88:	TOTAL: \$116,555			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schetz, J. A.	ARC/Aoyagi, K.	41-Aero Engr			
Sebba, F.	ARC/Koenig, D. G.				
Walker, D.					
NAG 2-461	Va Polytechnic Inst & St Univ	5692			
Design of a CAD interface for automated conceptual design of supersonic STOVL aircraft					
<i>Period</i>		<i>Obligations</i>			
06/15/87-06/14/89	FY88: \$246,470	TOTAL: \$296,470			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Myklebust, R. A.	ARC/Gelhausen, P. A.	41-Aero Engr			
Mahan, J. R.	ARC/Wilson, S. B.				
Brown, E. F.					
NAG 3-172	Va Polytechnic Inst & St Univ	5693			
Study of the stress wave factor technique for the characterization of composite materials					
<i>Period</i>		<i>Obligations</i>			
04/01/81-05/28/89	FY88: \$70,988	TOTAL: \$368,492			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Henneke, E. G.	LERC/Vary, A.	47-Materials Engr			
Stinchcomb, W. W.	LERC/Kautz, H. E.				
Duke, J. C., Jr.					
NAG 3-551	Va Polytechnic Inst & St Univ	5694			
Control analysis and design for resonant converters					
<i>Period</i>		<i>Obligations</i>			
05/01/84-03/28/87	FY88:	TOTAL: \$185,840			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lee, F. C.	LERC/Baez, A. N.	45-Elec Engr			
NAG 3-676	Va Polytechnic Inst & St Univ	5695			
Analysis and performance prediction of hypersonic inlet					
<i>Period</i>		<i>Obligations</i>			
12/16/85-06/15/87	FY88:	TOTAL: \$26,387			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ng, W.	LERC/Kunik, W. G.	41-Aero Engr			
NAG 3-765	Va Polytechnic Inst & St Univ	5696			
Analysis and performance prediction of hypersonic inlet					
<i>Period</i>		<i>Obligations</i>			
12/16/86-12/15/87	FY88:	TOTAL: \$25,004			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ng, W. F.	LERC/Kunik, W. G.	41-Aero Engr			
NAG 3-830	Va Polytechnic Inst & St Univ	5697			
Experimental studies of a supersonic through flow cascade					
<i>Period</i>		<i>Obligations</i>			
11/06/87-09/30/89	FY88: \$189,986	TOTAL: \$189,986			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ng, W. F.	LERC/Tweedt, D. L.	41-Aero Engr			
Schetz, J. A.	LERC/Moore, R. D.				
NAG 3-870	Va Polytechnic Inst & St Univ	5698			
Analysis and performance prediction of hypersonic inlets					
<i>Period</i>		<i>Obligations</i>			
01/31/88-01/30/89	FY88: \$24,996	TOTAL: \$24,996			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ng, W.	LERC/Wood, J. R.	41-Aero Engr			
	LERC/Benson, T.				
NAG 3-919	Va Polytechnic Inst & St Univ	5699			
3 D viscous flow calculation for the NASA low speed centrifugal compressor					
<i>Period</i>		<i>Obligations</i>			
07/11/88-12/31/88	FY88: \$9,852	TOTAL: \$9,852			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Moore, J.	LERC/Schumann, L. F.	41-Aero Engr			
Moore, J. G.					
NAG 3-933	Va Polytechnic Inst & St Univ	5700			
Probabilistic micromechanics for high-temperature composites					
<i>Period</i>		<i>Obligations</i>			
10/01/88-09/30/89	FY88: \$75,604	TOTAL: \$75,604			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Reddy, J. N.	LERC/Hopkins, D. A.	41-Aero Engr			
NAG 5-518	Va Polytechnic Inst & St Univ	5701			
Computer aided modeling and analysis of power processing systems					
<i>Period</i>		<i>Obligations</i>			
04/01/85-05/31/88	FY88:	TOTAL: \$275,874			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lee, F. C.	GSFC/Jagielski, J. M.	45-Elec Engr			
Cho, B. H.	GSFC/Rodriguez, G. E.				
NAG 5-636	Va Polytechnic Inst & St Univ	5702			
Aircraft based multibeam radar altimetry					
<i>Period</i>		<i>Obligations</i>			
06/01/86-11/14/87	FY88:	TOTAL: \$61,531			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, G. S.	GSFC/Parsons, C. L.	45-Elec Engr			
	GSFC/Hayne, G. S.				
NAG 5-648	Va Polytechnic Inst & St Univ	5703			
Analysis applied to radar sensing of the ocean surface					
<i>Period</i>		<i>Obligations</i>			
03/15/88-03/14/89	FY88: \$45,807	TOTAL: \$45,807			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, G. S.	GSFC/Parsons, C. L.	45-Elec Engr			
	GSFC/Hayne, G. S.				
NAG 8-99	Va Polytechnic Inst & St Univ	5704			
Revitalizing the Marshall Space Flight Centers productivity improvement plan					
<i>Period</i>		<i>Obligations</i>			
01/14/88-09/13/88	FY88: \$102,903	TOTAL: \$102,903			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sink, D. S.	MSFC/Nabors, S. A.	99-Multi-Discip			
Koelling, C. P.	MSFC/Reynolds, W. R.				
NAG 8-453	Va Polytechnic Inst & St Univ	5705			
Anisotropic Compton scattered X-rays from active galactic nuclei: A theoretical study under the HEAO-2 guest observer program					
<i>Period</i>		<i>Obligations</i>			
05/06/83-05/05/87	FY88:	TOTAL: \$11,922			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
O'dell, S. L.	MSFC/Johnson, W. G.	11-Astronomy			
NAGW 1277	Va Polytechnic Inst & St Univ	5706			
Determining the effects of gravitational stresses on lignia formation and structure a new approach					
<i>Period</i>		<i>Obligations</i>			
01/01/88-12/31/88	FY88: \$50,000	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lewis, N. G.	HQ-EB/Halstead, T. W.	51-Biological Sci			

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAS 1-17256	Va Polytechnic Inst & St Univ	5707			
A computer simulation model for managing aircraft survivability					
<i>Period</i>		<i>Obligations</i>			
12/22/82-09/30/87		FY88:	TOTAL: \$499,984		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Drew, D. R.		LARC/Sobieski, J.	49-Engr, NEC		
NAS 1-18106	Va Polytechnic Inst & St Univ	5708			
Research effort in aerodynamics, mathematics, chemistry, physics, computer science, atmospheric science, and structural materials science					
<i>Period</i>		<i>Obligations</i>			
08/30/85-08/29/88		FY88:	TOTAL: \$573,800		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Ng, W.		LARC/Prior, E. J.	41-Aero Engr		
NAS 1-18471	Va Polytechnic Inst & St Univ	5709			
Research in aerodynamics and other related fields					
<i>Period</i>		<i>Obligations</i>			
06/15/87-06/07/92		FY88: \$272,049	TOTAL: \$411,095		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Unavailable		LARC/Prior, E. J.	41-Aero Engr		
		LARC/Massenberg, S. E.			
NCA 2-316	Va Polytechnic Inst & St Univ	5710			
The role of submarine groundwater discharge in polar lakes to the process of varve formation in polar lake sediments					
<i>Period</i>		<i>Obligations</i>			
04/15/88-04/14/90		FY88: \$9,900	TOTAL: \$9,900		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Simmons, G. M.		ARC/McKay, C. P.	51-Biological Sci		
NCC 1-130	Va Polytechnic Inst & St Univ	5711			
The response of nonlinear springs					
<i>Period</i>		<i>Obligations</i>			
08/25/88-08/24/89		FY88: \$59,983	TOTAL: \$59,983		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hyer, M. W.		LARC/Farley, G. L.	41-Aero Engr		
NCC 2-71	Va Polytechnic Inst & St Univ	5712			
The accelerated characterization of polymer based fiber reinforced composites					
<i>Period</i>		<i>Obligations</i>			
10/01/80-03/14/89		FY88: \$74,303	TOTAL: \$474,056		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Brinson, H. F.		ARC/Nelson, H. G.	47-Materials Engr		
Hiel, C.					
NGT 00-050-000	Va Polytechnic Inst & St Univ	5713			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
03/15/86-07/14/88		FY88: \$7,500	TOTAL: \$37,500		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hendricks, S. L.		HQ-LE/Owens, F. C.	49-Engr, NEC		
NGT 00-050-001	Va Polytechnic Inst & St Univ	5714			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
04/01/86-03/31/89		FY88: \$18,000	TOTAL: \$54,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
O'Brien, W. F.		HQ-LE/Owens, F. C.	46-Mech Engr		
NGT 00-050-004	Va Polytechnic Inst & St Univ	5715			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/16/86-06/15/89		FY88: \$18,000	TOTAL: \$53,884		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Lindner, D.		HQ-XE/Owens, F. C.	45-Elec Engr		
NGT 00-050-089	Va Polytechnic Inst & St Univ	5716			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/15/86-06/14/89		FY88: \$36,000	TOTAL: \$54,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Ng, W. F.		HQ-LE/Owens, F. C.	46-Mech Engr		
NGT 00-050-119	Va Polytechnic Inst & St Univ	5717			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/12/87-06/11/89		FY88: \$18,000	TOTAL: \$36,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hyer, M. W.		HQ-LE/Owens, F. C.	49-Engr, NEC		
NGT 00-050-123	Va Polytechnic Inst & St Univ	5718			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/15/87-06/14/89		FY88: \$18,000	TOTAL: \$36,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Telonis, D. P.		HQ-LE/Owens, F. C.	46-Mech Engr		
NGT 00-050-144	Va Polytechnic Inst & St Univ	5719			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/15/87-06/14/89		FY88: \$36,000	TOTAL: \$36,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Telonis, D. P.		HQ-XE/Owens, F. C.	46-Mech Engr		
NGT 00-050-230	Va Polytechnic Inst & St Univ	5720			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/10/87-08/31/89		FY88: \$61,052	TOTAL: \$61,052		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Dugger, W. E.		HQ-XE/Owens, F. C.	99-Multi-Discip		
NGT 00-070-088	Va Polytechnic Inst & St Univ	5721			
Graduate student researchers underrepresented minority focus program					
<i>Period</i>		<i>Obligations</i>			
08/16/88-08/15/89		FY88: \$18,000	TOTAL: \$18,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Mahan, J. R.		HQ-XE/Owens, F. C.	46-Mech Engr		
NGT 47-004-810	Va Polytechnic Inst & St Univ	5722			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
06/20/85-06/19/89		FY88: \$18,000	TOTAL: \$72,000		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Dugger, W. E.		HQ-LE/Owens, F. C.	11-Astronomy		
NGT 47-004-811	Va Polytechnic Inst & St Univ	5723			
NASA graduate student researchers program					
<i>Period</i>		<i>Obligations</i>			
01/01/86-06/30/89		FY88: \$25,000	TOTAL: \$43,090		
<i>Prin. Invest.</i>		<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Duke, J. C., Jr.		HQ-LE/Owens, F. C.	49-Engr, NEC		

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 1-416 **Virginia State University** **5724**
Materials science research with subatomic particles
Period *Obligations*
01/01/84-02/28/89 FY88: \$88,806 TOTAL: \$758,747
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stronach, C. E. LARC/Wilson, J. W. 19-Phys Sci, NEC
Grynszpan, R. I. LARC/Meador, W. E.
Stith, J. J.

NAG 1-327 **University of Washington** **5731**
Research related to the technology of space energy conversion systems
Period *Obligations*
02/08/83-02/07/89 FY88: \$215,020 TOTAL: \$1,227,117
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hertzberg, A. LARC/Conway, E. J. 42-Astro Engr
Bruckner, A. P. LARC/Deyoung, R.
Mattick, A. T.

NAG 1-743 **Virginia State University** **5725**
Measurement of thermal optical properties of solid state laser materials
Period *Obligations*
04/01/87-04/30/89 FY88: \$56,847 TOTAL: \$114,549
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henderson, G. W. LARC/Brockman, P. 13-Physics
LARC/Hess, R. V.

NAG 1-621 **University of Washington** **5732**
Compression creep of filamentary composites
Period *Obligations*
10/23/85-03/31/88 FY88: TOTAL: \$102,059
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, K. Y. LARC/Whitcomb, J. D. 46-Mech Engr
Tuttle, M. E. LARC/Crews, J. H., Jr.

NAG 1-765 **Virginia State University** **5726**
Computer simulation of radiation damage in semiconductors and polymers
Period *Obligations*
05/18/87-08/31/88 FY88: TOTAL: \$93,236
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stith, J. J. LARC/Wilson, J. W. 19-Phys Sci, NEC
Davenport, J. C.

NAG 1-746 **University of Washington** **5733**
Ram cannon for a space cargo launcher
Period *Obligations*
04/01/87-10/31/88 FY88: TOTAL: \$99,933
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hertzberg, A. LARC/Martin, J. A. 41-Aero Engr
Bruckner, A. P. LARC/Freeman, D. C.

NGT 00-050-112 **Virginia State University** **5727**
NASA graduate student researchers program
Period *Obligations*
06/01/87-05/31/89 FY88: \$18,000 TOTAL: \$35,266
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wightman, J. P. HQ-LE/Owens, F. C. 99-Multi-Discip

NAG 1-913 **University of Washington** **5734**
Robust integrated autopilot autothrottle design using constrained parameter optimization
Period *Obligations*
09/16/88-09/15/89 FY88: \$28,772 TOTAL: \$28,772
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Loily, U. LARC/Hueschen, R. M. 45-Elec Engr
LARC/Belcastro, C. M.

WASHINGTON

NCC 2-437 **Eastern Washington Univ** **5728**
Dynamically reconfigurable microprocessor based instrumentation systems for airborne applications
Period *Obligations*
10/01/86-12/31/88 FY88: \$140,380 TOTAL: \$278,380
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hale, A. L. ARC/Bogue, R. K. 45-Elec Engr
ARC/Bever, G. A.

NAG 2-283 **University of Washington** **5735**
Aerodynamics of vortex generators
Period *Obligations*
01/01/84-12/31/87 FY88: TOTAL: \$92,889
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Russell, D. A. ARC/King, L. S. 41-Aero Engr
Breidenthal, R. E. ARC/Davis, S. S.

NAG 1-41 **University of Washington** **5729**
Radiation viewfactor analysis
Period *Obligations*
03/01/80-12/31/88 FY88: \$61,996 TOTAL: \$354,639
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emery, A. F. LARC/Robinson, J. C. 46-Mech Engr
Kippenham, C. J. LARC/Polesky, S. P.

NAG 3-376 **University of Washington** **5736**
Investigation of three-dimensional boundary layer flows in subsonic diffusers
Period *Obligations*
12/05/82-10/19/88 FY88: \$30,000 TOTAL: \$332,720
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Childs, M. E. LERC/Hingst, W. R. 41-Aero Engr
Gessner, F. B.

NAG 1-176 **University of Washington** **5730**
Study of blackbody-pumped lasers
Period *Obligations*
04/01/81-12/31/88 FY88: \$61,900 TOTAL: \$438,639
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Christiansen, W. H. LARC/Deyoung, R. J. 13-Physics
LARC/Meador, W.

NAG 3-871 **University of Washington** **5737**
Structure property relations in Al Nb based alloys
Period *Obligations*
02/01/88-01/31/89 FY88: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kaufman, M. J. LERC/Titran, R. H. 47-Materials Engr

NAG 5-45 **University of Washington** **5738**
Observations of selected astronomical objects
Period *Obligations*
04/15/80-09/14/89 FY88: \$24,900 TOTAL: \$128,546
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bohm, K. H. GSFC/Kondo, Y. 11-Astronomy
Vitense, E. B.

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NAG 5-357 University of Washington 5739
 Mass loss and photospheric structure in early type spectrum variables
Period Obligations
 08/01/83-09/30/89 FY88: \$20,294 TOTAL: \$107,692
Prin. Invest. NASA Tech. Officer CASE Category
 Brown, D. GSFC/Kondo, Y. 11-Astronomy
 Shore, S. N.
 Bolton, C. T.

NAG 5-943 University of Washington 5747
 Use of passive microwave radiometry to study atmospheric water content
Period Obligations
 07/01/87-06/30/89 FY88: \$80,000 TOTAL: \$120,000
Prin. Invest. NASA Tech. Officer CASE Category
 Katsaros, K. B. GSFC/Wang, J. R. 31-Atmos Sci
 GSFC/Shiue, J. C.

NAG 5-373 University of Washington 5740
 Study of energetic particle fluxes in and beyond the Earth's data magnetosphere
Period Obligations
 10/01/83-09/30/89 FY88: \$155,350 TOTAL: \$965,741
Prin. Invest. NASA Tech. Officer CASE Category
 Parks, G. K. GSFC/Wales, R. O. 31-Atmos Sci
 HQ-EL/Quaide, W. L.

NAG 5-1020 University of Washington 5748
 Ultraviolet observations of compact high surface brightness HII regions
Period Obligations
 11/01/87-10/31/89 FY88: \$47,000 TOTAL: \$47,000
Prin. Invest. NASA Tech. Officer CASE Category
 Hodge, P. W. GSFC/Kondo, Y. 11-Astronomy
 Lee, M. G.

NAG 5-521 University of Washington 5741
 Evaluation of surface radiation and energy budget stations
Period Obligations
 03/15/85-09/14/87 FY88: \$106,976 TOTAL: \$106,976
Prin. Invest. NASA Tech. Officer CASE Category
 Fritschen, L. J. GSFC/Hall, F. 31-Atmos Sci
 Gay, L. W. GSFC/Gurney, R. J.

NAG 5-1038 University of Washington 5749
 Research relative to flexure for crgcooler applications
Period Obligations
 03/15/88-03/14/89 FY88: \$51,909 TOTAL: \$51,909
Prin. Invest. NASA Tech. Officer CASE Category
 Riggle, P. GSFC/Castles, S. H. 47-Materials Engr
 Emigh, S. G.
 Noble, J. E.

NAG 5-604 University of Washington 5742
 Middle atmospheric electric fields over thunderstorm
Period Obligations
 05/01/82-04/30/89 FY88: \$80,000 TOTAL: \$485,238
Prin. Invest. NASA Tech. Officer CASE Category
 Holzworth, R. H. GSFC/Early, L. J. 13-Physics
 Parks, G. K. GSFC/Pless, R. H.

NAG 8-61 University of Washington 5750
 Thundercloud electrification and its dependence on environmental conditions
Period Obligations
 08/14/86-12/30/88 FY88: \$100,000 TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
 Baker, M. B. MSFC/Christian, H. J. 31-Atmos Sci
 Holzworth, R. H. MSFC/Smith, G. T.

NAG 5-635 University of Washington 5743
 Electrodynamics of the middle atmosphere and superpressure balloon program
Period Obligations
 05/01/86-11/30/88 FY88: \$39,613 TOTAL: \$134,613
Prin. Invest. NASA Tech. Officer CASE Category
 Holzworth, R. H. GSFC/Early, L. J. 13-Physics
 GSFC/Pless, R. H.

NAG 8-590 University of Washington 5751
 The X ray properties of infrared selected Seyfert galaxies
Period Obligations
 07/01/86-06/30/89 FY88: \$29,067 TOTAL: \$54,067
Prin. Invest. NASA Tech. Officer CASE Category
 Margon, B. MSFC/Harper, B. A. 11-Astronomy
 Anderson, S.

NAG 5-784 University of Washington 5744
 Global investigations of tropical cloud clusters
Period Obligations
 05/01/86-06/30/89 FY88: \$177,711 TOTAL: \$337,711
Prin. Invest. NASA Tech. Officer CASE Category
 Houze, R. A., Jr. GSFC/Lau, W. K. 31-Atmos Sci
 Katsaros, K. B. GSFC/Thiele, O. W.

NAG 8-608 University of Washington 5752
 Time series analysis of catalytic variables
Period Obligations
 10/01/86-09/30/88 FY88: \$10,758 TOTAL: \$10,758
Prin. Invest. NASA Tech. Officer CASE Category
 Deeter, J. E. MSFC/Potter, P. Y. 11-Astronomy

NAG 5-886 University of Washington 5745
 Analysis of the absorption of solar radiation by clouds
Period Obligations
 03/15/87-03/14/89 FY88: \$16,210 TOTAL: \$16,210
Prin. Invest. NASA Tech. Officer CASE Category
 Hobbs, P. V. GSFC/Thiele, O. W. 31-Atmos Sci

NAG 8-609 University of Washington 5753
 The accretion column in four cataclysmic variables
Period Obligations
 10/01/86-03/31/88 FY88: \$16,000 TOTAL: \$16,000
Prin. Invest. NASA Tech. Officer CASE Category
 Szkody, P. MSFC/Potter, P. Y. 11-Astronomy

NAG 5-901 University of Washington 5746
 Evaluation of surface radiation and energy budget stations for fire
Period Obligations
 05/01/87-09/30/89 FY88: \$45,000 TOTAL: \$128,374
Prin. Invest. NASA Tech. Officer CASE Category
 Fritschen, L. G. GSFC/Camillo, P. 39-Env Sci, NEC
 GSFC/Hall, F.

NAG 8-695 University of Washington 5754
 Pulse timing studies of rotating neutron stars
Period Obligations
 01/01/88-12/31/88 FY88: \$78,676 TOTAL: \$78,676
Prin. Invest. NASA Tech. Officer CASE Category
 Deeter, J. E. MSFC/Harper, B. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NAG 8-696 University of Washington 5755
Time variability studies of 5 cataclysmic variables
Period Obligations
10/01/87-09/30/89 FY88: \$59,952 TOTAL: \$59,952
Prin. Invest. NASA Tech. Officer CASE Category
Szkody, P. MSFC/Harper, B. A. 11-Astronomy

NAGW 471 University of Washington 5763
Investigations of stratospheric dynamics and transport using Nimbus satellite data
Period Obligations
05/15/83-10/31/88 FY88: \$142,564 TOTAL: \$789,885
Prin. Invest. NASA Tech. Officer CASE Category
Leovy, C. B. HQ-EE/Jackman, C. H. 31-Atmos Sci
Hartman, D. L. HQ-EE/Butler, D. M.

NAG 9-84 University of Washington 5756
The formation of cumulate rocks
Period Obligations
03/01/84-03/01/89 FY88: \$49,000 TOTAL: \$258,500
Prin. Invest. NASA Tech. Officer CASE Category
McCallum, I. S. JSC/Phinney, W. C. 32-Geological Sci

NAGW 662 University of Washington 5764
Wave dynamics and transport in the stratosphere
Period Obligations
12/01/84-11/30/88 FY88: \$151,000 TOTAL: \$428,270
Prin. Invest. NASA Tech. Officer CASE Category
Holton, J. R. HQ-EE/Jackman, C. H. 31-Atmos Sci
HQ-EE/Butler, D. M.

NAG 9-227 University of Washington 5757
The feasibility and nature of an improvised repair capability for the NASA space station
Period Obligations
04/15/87-01/14/88 FY88: TOTAL: \$29,990
Prin. Invest. NASA Tech. Officer CASE Category
Lewis, W. C. JSC/Cullingford, H. S. 46-Mech Engr

NAGW 679 University of Washington 5765
Study of the mesoscale structure over the ocean using Seasat a satellite seotlerometer (SASS)
Period Obligations
01/01/85-03/31/88 FY88: TOTAL: \$148,343
Prin. Invest. NASA Tech. Officer CASE Category
Brown, R. A. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAG 9-243 University of Washington 5758
Analysis of Mars meteorological data
Period Obligations
06/20/87-08/01/89 FY88: \$80,000 TOTAL: \$110,000
Prin. Invest. NASA Tech. Officer CASE Category
Tillman, J. E. JSC/Pitts, D. E. 39-Env Sci, NEC

NAGW 840 University of Washington 5766
Methane and carbon monoxide: Flux and microbial process studies in streams, rivers, and coastal marine ecosystems
Period Obligations
10/01/85-12/31/88 FY88: \$75,000 TOTAL: \$243,750
Prin. Invest. NASA Tech. Officer CASE Category
Lilley, M. D. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
HQ-EE/Watson, R. T.

NAGW 85 University of Washington 5759
Geologic remote sensing
Period Obligations
09/16/80-07/31/89 FY88: \$225,000 TOTAL: \$1,200,000
Prin. Invest. NASA Tech. Officer CASE Category
Adams, J. B. HQ-EE/Tuyahov, A. J. 32-Geological Sci
HQ-EE/Murphy, R. E.

NAGW 844 University of Washington 5767
An isotopic biogeochemical study of wetland methane and its exchange with the atmosphere
Period Obligations
10/01/85-12/31/88 FY88: \$170,442 TOTAL: \$561,676
Prin. Invest. NASA Tech. Officer CASE Category
Quay, P. D. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
King, S. L. HQ-EE/Watson, R. T.
Gammon, R. H.

NAGW 199 University of Washington 5760
Interdisciplinary research and development on the effects of the nature and properties of ceramic materials
Period Obligations
07/01/81-06/30/89 FY88: TOTAL: \$2,515,500
Prin. Invest. NASA Tech. Officer CASE Category
Bradt, R. C. HQ-RM/Greenfield, M. A. 47-Materials Engr
Bollard, R. J. HQ-RM/Venneri, S. L.

NAGW 845 University of Washington 5768
A multi-sensor remote sensing approach for measuring primary productivity from space
Period Obligations
12/01/85-11/30/88 FY88: \$43,697 TOTAL: \$223,292
Prin. Invest. NASA Tech. Officer CASE Category
Perry, M. J. HQ-EE/Yoder, J. A. 33-Oceanography
Gautier, C. HQ-EE/Wilson, W. S.

NAGW 328 University of Washington 5761
Impact crater scaling laws
Period Obligations
06/16/82-10/31/89 FY88: \$42,568 TOTAL: \$256,736
Prin. Invest. NASA Tech. Officer CASE Category
Holsapple, K. A. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 412 University of Washington 5762
Local deformation of sea ice from SAR images
Period Obligations
01/01/83-05/31/89 FY88: \$236,605 TOTAL: \$898,265
Prin. Invest. NASA Tech. Officer CASE Category
Rothrock, D. A. HQ-EE/Thomas, R. T. 33-Oceanography
Thorndike, A. S. HQ-EE/Wilson, W. S.

NAGW 889 University of Washington 5769
Analysis of coastal systems of Washington using satellite remote sensing of ocean color and temperature
Period Obligations
04/01/86-01/31/89 FY88: \$63,434 TOTAL: \$283,160
Prin. Invest. NASA Tech. Officer CASE Category
Perry, M. J. HQ-EE/Yoder, J. A. 33-Oceanography
HQ-EE/Wilson, W. S.

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NAGW 945 University of Washington 5770
Weddell sea passive microwave experiment
Period Obligations
08/15/86-08/14/88 FY88: TOTAL: \$66,027
Prin. Invest. NASA Tech. Officer CASE Category
Grenfell, T. HQ-EE/Jezek, K. C. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1007 University of Washington 5771
Chlorophyll distribution from the coastal zone color scanner and hydrography in the Northern Arabian sea
Period Obligations
12/01/86-11/30/88 FY88: \$99,388 TOTAL: \$190,746
Prin. Invest. NASA Tech. Officer CASE Category
Banse, K. HQ-EE/Yoder, J. A. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1045 University of Washington 5772
A satellite study of polyhas in the Arctic ocean and the sea of Okhstic using the SSME and Seasat data sets
Period Obligations
02/15/87-02/14/89 FY88: \$85,169 TOTAL: \$156,883
Prin. Invest. NASA Tech. Officer CASE Category
Martin, S. HQ-EE/Jezek, K. C. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1066 University of Washington 5773
Biogenic gas emissions and source dynamics along the Amazon river floodplain
Period Obligations
03/15/87-03/14/89 FY88: \$50,000 TOTAL: \$203,000
Prin. Invest. NASA Tech. Officer CASE Category
Richey, J. E. HQ-EB/Averner, M. M. 51-Biological Sci
Devol, A. H.

NAGW 1081 University of Washington 5774
Mars volcanism and weathering
Period Obligations
05/01/87-04/30/89 FY88: \$25,000 TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
Adams, J. B. HQ-EL/Underwood, J. R. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 1133 University of Washington 5775
Precision pulse timing with large area detectors collaboration with Nagoya University
Period Obligations
07/01/87-12/31/88 FY88: TOTAL: \$24,657
Prin. Invest. NASA Tech. Officer CASE Category
Deeter, J. E. HQ-EZ/Kaluzienski, L. J. 11-Astronomy

NAGW 1135 University of Washington 5776
Avisis data evaluation rock weathering and geobotary
Period Obligations
06/01/87-05/31/88 FY88: \$20,545 TOTAL: \$44,727
Prin. Invest. NASA Tech. Officer CASE Category
Adams, J. B. HQ-EE/Wickland, D. E. 32-Geological Sci
Smith, M. O. HQ-EE/Ruzek, M.
Gillespie, A. R.

NAGW 1160 University of Washington 5777
Theoretical support for the aircraft mission to the ozone hole
Period Obligations
08/15/87-08/14/88 FY88: TOTAL: \$53,050
Prin. Invest. NASA Tech. Officer CASE Category
Hartmann, D. L. HQ-EE/Margitan, J. J. 31-Atmos Sci
HQ-EE/Kurylo, M. J.

NAGW 1163 University of Washington 5778
Wide binary stars as a probe of dark galactic matter
Period Obligations
08/15/87-08/14/89 FY88: TOTAL: \$27,019
Prin. Invest. NASA Tech. Officer CASE Category
Margon, B. HQ-EZ/Weiler, E. J. 11-Astronomy

NAGW 1218 University of Washington 5779
AMPTE IRM VLF stepped frequency receiver analysis
Period Obligations
09/15/87-09/14/88 FY88: TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
Holzworth, R. H. HQ-EE/Theis, R. F. 13-Physics
Merrill, R. T. HQ-EE/Eastman, T. E.

NAGW 1243 University of Washington 5780
Analysis of observed sea ice motion in support of remote sensing of sea ice
Period Obligations
12/01/87-11/30/88 FY88: \$73,601 TOTAL: \$73,601
Prin. Invest. NASA Tech. Officer CASE Category
Colony, R. L. HQ-EE/Jezek, K. C. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1256 University of Washington 5781
Sea ice type discrimination using polar ingetric synthetic aperture radar
Period Obligations
01/01/88-12/31/88 FY88: \$66,204 TOTAL: \$66,204
Prin. Invest. NASA Tech. Officer CASE Category
Winebrenner, D. P. HQ-EE/Jezek, K. C. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1317 University of Washington 5782
Regional patterns of soil formation and paleomatic inferences
Period Obligations
05/01/88-12/31/89 FY88: \$167,000 TOTAL: \$167,000
Prin. Invest. NASA Tech. Officer CASE Category
Gillespie, A. R. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Murphy, R. E.

NAGW 1319 University of Washington 5783
Rock weathering and geobotany
Period Obligations
04/01/88-04/31/89 FY88: \$179,999 TOTAL: \$179,999
Prin. Invest. NASA Tech. Officer CASE Category
Adams, J. B. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Ruzek, M. J.

NAGW 1322 University of Washington 5784
Relationships between wind waves and radar backscatter
Period Obligations
05/01/88-05/31/89 FY88: \$55,072 TOTAL: \$55,072
Prin. Invest. NASA Tech. Officer CASE Category
Katsaros, K. B. HQ-EE/Richman, J. G. 33-Oceanography
HQ-EE/Wilson, W. S.

NAGW 1341 University of Washington 5785
Martian global dust storm initiation and atmospheric oscillations
Period Obligations
06/01/88-05/31/89 FY88: \$49,995 TOTAL: \$49,995
Prin. Invest. NASA Tech. Officer CASE Category
Tillman, J. E. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NAGW 1394 University of Washington 5786
The role of extracellular calcium in plant gravitropism
Period Obligations
08/01/88-07/31/89 FY88: \$60,000 TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
Cleland, R. E. HQ-EB/Halstead, T. W. 51-Biological Sci

NCA 2-296 University of Washington 5794
Surface pressure mapping by luminescence quenching
Period Obligations
03/16/88-09/30/89 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Gouterman, M. ARC/McLachlan, B. G. 12-Chemistry
Callis, J. B.

NAGW 1436 University of Washington 5787
Satellite studies of ice edge and poplyana processes
Period Obligations
01/01/89-12/31/89 FY88: \$86,376 TOTAL: \$86,376
Prin. Invest. NASA Tech. Officer CASE Category
Martin, S. HQ-EE/Thomas, R. H. 33-Oceanography
HQ-EE/Wilson, W. S.

NCA 2-299 University of Washington 5795
Effects of altitude on the retrieval of information from memory at Mount Everest
Period Obligations
04/01/88-03/31/89 FY88: \$28,877 TOTAL: \$28,877
Prin. Invest. NASA Tech. Officer CASE Category
Nelson, T. O. ARC/Nagel, D. C. 69-Psych, NEC
ARC/Foushee, H. C.

NAS 1-18157 University of Washington 5788
Science support for the Earth radiation budget experiment (ERBE)
Period Obligations
10/15/85-10/14/90 FY88: TOTAL: \$489,000
Prin. Invest. NASA Tech. Officer CASE Category
Hartmann, D. L. LARC/Cooper, J. E. 31-Atmos Sci
LARC/Barkstrom, B.

NCC 2-268 University of Washington 5796
Micro-laser Raman studies of carbonaceous interplanetary dust particles
Period Obligations
09/01/83-06/30/87 FY88: TOTAL: \$91,875
Prin. Invest. NASA Tech. Officer CASE Category
MacKlin, J. W. ARC/Chang, S. 12-Chemistry
Brownlee, D. E. ARC/Bunch, T. E.

NAS 5-26301 University of Washington 5789
Wave dynamics and transport in the middle atmosphere (UARS)
Period Obligations
10/01/80-02/28/90 FY88: \$255,945 TOTAL: \$321,354
Prin. Invest. NASA Tech. Officer CASE Category
Holton, J. R. GSFC/Reber, C. 31-Atmos Sci

NGT 00-050-023 University of Washington 5797
NASA graduate student researchers program
Period Obligations
09/15/86-09/14/88 FY88: \$17,700 TOTAL: \$34,858
Prin. Invest. NASA Tech. Officer CASE Category
Parks, G. K. HQ-LE/Owens, F. C. 13-Physics

NAS 5-26850 University of Washington 5790
Fast and versatile 3-D plasma experiment to study magnetospheric dynamics
Period Obligations
05/04/82-06/30/89 FY88: TOTAL: \$268,840
Prin. Invest. NASA Tech. Officer CASE Category
Parks, G. K. GSFC/O'Brien, J. J. 13-Physics

NGT 00-050-231 University of Washington 5798
NASA graduate student researchers program
Period Obligations
07/01/87-06/30/89 FY88: \$35,554 TOTAL: \$35,554
Prin. Invest. NASA Tech. Officer CASE Category
Leovy, C. B. HQ-XE/Owens, F. C. 31-Atmos Sci

NASW 4016 University of Washington 5791
Rock weathering and geobotany
Period Obligations
04/01/85-06/30/88 FY88: \$45,559 TOTAL: \$710,559
Prin. Invest. NASA Tech. Officer CASE Category
Adams, J. B. HQ-EE/Evans, D. 32-Geological Sci

NGT 00-050-283 University of Washington 5799
NASA graduate student researchers program
Period Obligations
09/16/88-09/15/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Massey, R. D. HQ-ES/Ahluwalia, H. S. 13-Physics
Parks, G. K. HQ-ES/Parks, G.

NCA 2-185 University of Washington 5792
Analysis of numerical methods for chemically reacting hypersonic flows
Period Obligations
12/01/88-11/30/88 FY88: \$36,000 TOTAL: \$60,984
Prin. Invest. NASA Tech. Officer CASE Category
Leveque, R. J. ARC/Yee, H. C. 21-Mathematics

NGT 00-050-322 University of Washington 5800
NASA graduate student researchers program
Period Obligations
08/30/88-08/29/89 FY88: \$16,972 TOTAL: \$16,972
Prin. Invest. NASA Tech. Officer CASE Category
Martin, S. HQ-XE/Owens, F. C. 33-Oceanography

NCA 2-278 University of Washington 5793
SIRTF pointing control system
Period Obligations
01/01/88-12/31/88 FY88: \$15,257 TOTAL: \$15,257
Prin. Invest. NASA Tech. Officer CASE Category
Alexandro, F. J. ARC/Hirata, J. H. 45-Elec Engr

NGT 00-070-002 University of Washington 5801
Graduate student researchers underrepresented minority focus program
Period Obligations
01/01/87-12/31/87 FY88: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Szkody, P. HQ-LE/Owens, F. C. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NGT 00-070-006 University of Washington 5802
Graduate student researchers underrepresented minority focus program
Period *Obligations*
06/15/87-06/14/89 FY88: \$15,600 TOTAL: \$33,600
Prin. Invest. NASA Tech. Officer CASE Category
Vitense, E. B. HQ-LE/Owens, F. C. 11-Astronomy

NGT 00-070-050 University of Washington 5803
Graduate student researchers underrepresented minority focus program
Period *Obligations*
09/16/87-09/15/89 FY88: \$36,000 TOTAL: \$36,000
Prin. Invest. NASA Tech. Officer CASE Category
Margon, B. HQ-XE/Owens, F. C. 11-Astronomy

NSG 5395 University of Washington 5804
Ultraviolet observations of selected cataclysmic variables
Period *Obligations*
07/01/79-10/14/89 FY88: \$63,700 TOTAL: \$225,304
Prin. Invest. NASA Tech. Officer CASE Category
Szkody, P. GSFC/Kondo, Y. 11-Astronomy

NSG 5398 University of Washington 5805
Observations of classical stellar chromospheres
Period *Obligations*
07/15/79-08/31/89 FY88: \$118,200 TOTAL: \$473,902
Prin. Invest. NASA Tech. Officer CASE Category
Bohm-vitense, E. GSFC/Kondo, Y. 11-Astronomy
Boggs, D.

NSG 7085 University of Washington 5806
Dynamics of planetary atmospheres
Period *Obligations*
07/01/74-07/30/88 FY88: \$64,500 TOTAL: \$632,491
Prin. Invest. NASA Tech. Officer CASE Category
Leovy, C. B. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NSG 7173 University of Washington 5807
Application of spectral reflectance of lunar samples to telescopic spectra of unvisited parts of the Moon
Period *Obligations*
07/01/75-12/31/88 FY88: \$50,000 TOTAL: \$690,980
Prin. Invest. NASA Tech. Officer CASE Category
Adams, J. B. HQ-EL/Underwood, J. 32-Geological Sci
HQ-EL/Boyce, J. M.

NSG 9052 University of Washington 5808
A study of interplanetary dust
Period *Obligations*
03/01/77-02/01/89 FY88: \$155,000 TOTAL: \$1,506,018
Prin. Invest. NASA Tech. Officer CASE Category
Brownlee, D. E. JSC/Brown, I. D. 31-Atmos Sci

NAG 1-797 Washington State University 5809
Photo nuclear absorption cross sections
Period *Obligations*
10/01/87-11/15/88 FY88: TOTAL: \$5,208
Prin. Invest. NASA Tech. Officer CASE Category
Norbury, J. W. LARC/Townsend, L. W. 13-Physics
LARC/Meador, W. E.

NAG 5-410 Washington State University 5810
Studies of infrared symbiotic stars/planetary nebulae
Period *Obligations*
06/15/84-09/14/87 FY88: TOTAL: \$10,997
Prin. Invest. NASA Tech. Officer CASE Category
Lutz, J. H. GSFC/Kondo, Y. 11-Astronomy

NAG 5-1075 Washington State University 5811
Winds from planetary nebula nuclei
Period *Obligations*
10/01/88-09/30/89 FY88: \$6,106 TOTAL: \$6,106
Prin. Invest. NASA Tech. Officer CASE Category
Lutz, J. GSFC/Kondo, Y. 11-Astronomy

NAG 9-226 Washington State University 5812
Differential pharmacokinetics and toxicology of iodine and iodide
Period *Obligations*
05/16/87-12/15/88 FY88: \$80,000 TOTAL: \$115,000
Prin. Invest. NASA Tech. Officer CASE Category
Bull, R. J. JSC/Sauer, R. L. 56-Medical Sciences

NAGW 1358 Washington State University 5813
Toward global perspectives on continental tectonics using remote sensing field and laboratory data
Period *Obligations*
05/01/88-12/31/88 FY88: \$138,161 TOTAL: \$138,161
Prin. Invest. NASA Tech. Officer CASE Category
Arvidson, R. E. HQ-EE/Baltuck, M. 32-Geological Sci
HQ-EE/Murphy, R. E.

NAG10-32 Washington State University 5814
Calcium messenger system in gravitropic response in plants
Period *Obligations*
07/30/86-04/01/89 FY88: \$45,000 TOTAL: \$130,000
Prin. Invest. NASA Tech. Officer CASE Category
Poovaiyah, B. W. KSC/Knott, W. M. 55-Agriculture Sci

NAS 5-28758 Washington State University 5815
Spectral characteristics and the extent of the palaeis formation
Period *Obligations*
08/06/85-10/06/88 FY88: TOTAL: \$85,477
Prin. Invest. NASA Tech. Officer CASE Category
Frazier, B. E. GSFC/Oseroff, H. 39-Env Sci, NEC
Busacca, A.

NASW 4125 Washington State University 5816
Development of micro Vax computer system for data base management and image retrieval processing and display in the NASA regional planetary image
Period *Obligations*
01/01/86-04/30/87 FY88: TOTAL: \$79,999
Prin. Invest. NASA Tech. Officer CASE Category
Aroidson, R. E. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Scott, D. H.

NCA 2-191 Washington State University 5817
Aeroassisted orbital maneuvering using Lyapunov optimal feedback control
Period *Obligations*
01/01/87-12/31/88 FY88: TOTAL: \$23,339
Prin. Invest. NASA Tech. Officer CASE Category
Grantham, W. J. ARC/Neuman, F. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NCA 2-216 Washington State University 5818
Modelling a microburst with multiple vortex rings
Period Obligations
05/16/87-05/15/89 FY88: \$28,092 TOTAL: \$37,817
Prin. Invest. NASA Tech. Officer CASE Category
Grantham, W. J. ARC/Bach, R. E. 41-Aero Engr

NGT 49-001-802 West Virginia University 5825
NASA graduate student researchers program
Period Obligations
07/01/85-06/30/89 FY88: \$12,000 TOTAL: \$66,000
Prin. Invest. NASA Tech. Officer CASE Category
Sivaneri, N. HQ-LE/Owens, F. C. 41-Aero Engr

NGT 00-050-075 Washington State University 5819
NASA graduate student researchers program
Period Obligations
08/01/86-07/31/89 FY88: \$35,000 TOTAL: \$53,000
Prin. Invest. NASA Tech. Officer CASE Category
Hower, G. HQ-LE/Owens, F. C. 45-Elec Engr

WISCONSIN

NAS 5-29252 Beloit College 5826
Guaranteed time observation (GTO) program
Period Obligations
11/25/85-05/31/90 FY88: \$37,000 TOTAL: \$74,000
Prin. Invest. NASA Tech. Officer CASE Category
Schroeder, D. J. GSFC/Kalinowski, J. K. 41-Aero Engr

WEST VIRGINIA

NAG 1-571 West Virginia University 5820
Development of an enhanced thermal structural methodology via transform methods based finite element formulations
Period Obligations
05/16/85-05/15/87 FY88: TOTAL: \$120,485
Prin. Invest. NASA Tech. Officer CASE Category
Tamma, K. K. LARC/Robinson, J. C. 46-Mech Engr
LARC/Adelman, H. M.

NAS 8-32901 Beloit College 5827
Scientific investigations in support of the space telescope project
Period Obligations
02/22/78-01/31/89 FY88: \$8,000 TOTAL: \$283,087
Prin. Invest. NASA Tech. Officer CASE Category
Schroeder, D. J. MSFC/Taylor, W. E. 11-Astronomy

NAG 1-625 West Virginia University 5821
Theoretical/numerical study of feasibility of use of winelets on low aspect ratio wings at subsonic + transonic Mach numbers to reduce drag
Period Obligations
01/06/86-05/31/89 FY88: \$46,889 TOTAL: \$129,718
Prin. Invest. NASA Tech. Officer CASE Category
Kuhlman, J. M. LARC/Campbell, R. L. 41-Aero Engr
LARC/Putnam, L. E.

NAG 2-212 Marquette University 5828
Alterations in skeletal muscle with disuse atrophy
Period Obligations
11/01/82-01/31/89 FY88: \$61,310 TOTAL: \$338,970
Prin. Invest. NASA Tech. Officer CASE Category
Fitts, R. H. ARC/Grindeland, R. E. 51-Biological Sci
Unsworth, B. R.
Courtright, J. B.

NAG 1-741 West Virginia University 5822
New approximations to solutions in problems of wave propagation with multi turning points
Period Obligations
05/16/87-05/15/89 FY88: \$40,320 TOTAL: \$83,053
Prin. Invest. NASA Tech. Officer CASE Category
Gingold, H. LARC/Zorumski, W. E. 21-Mathematics
LARC/McAninch, G. L.

NAG 2-460 Medical College of Wisconsin 5829
Investigation of nerve and muscle breakdown during spaceflight
Period Obligations
05/15/87-11/30/88 FY88: \$61,000 TOTAL: \$79,000
Prin. Invest. NASA Tech. Officer CASE Category
Riley, D. A. ARC/Grindeland, R. E. 56-Medical Sciences

NAG 1-748 West Virginia University 5823
Comparison of two and three component laser Doppler velocimeter measurements in a subsonic jet
Period Obligations
05/01/87-09/30/88 FY88: TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Kuhlman, J. M. LARC/Paulson, J. W., Jr. 41-Aero Engr

NAS 2-11305 Medical College of Wisconsin 5830
Electron microscopy, electromyography and protease activity of rat hind limb muscles
Period Obligations
08/02/82-09/30/88 FY88: \$140,000 TOTAL: \$779,047
Prin. Invest. NASA Tech. Officer CASE Category
Riley, D. A. ARC/Ferandin, J. A. 51-Biological Sci
ARC/Chee, O.

NAGW 842 West Virginia University 5824
Methane processes in wetlands and forest soils: Production, decomposition, and emission
Period Obligations
10/01/85-09/30/88 FY88: \$112,336 TOTAL: \$337,169
Prin. Invest. NASA Tech. Officer CASE Category
Lang, G. E. HQ-EE/Hampson, R. F. 39-Env Sci, NEC
HQ-EE/Watson, R. T.

NAG 3-710 St. Norbert College 5831
Synthesis of diamines for polyimides
Period Obligations
09/01/86-10/14/88 FY88: TOTAL: \$24,000
Prin. Invest. NASA Tech. Officer CASE Category
Klopotek, D. L. LARC/Delvigs, P. 12-Chemistry

NAG 1-553 University of Wisconsin - Madison 5832
Continental middle and high cloud project for fire
Period Obligations
01/01/85-12/31/88 FY88: \$62,000 TOTAL: \$193,630
Prin. Invest. NASA Tech. Officer CASE Category
Suomi, V. E. LARC/McDougal, D. S. 31-Atmos Sci
Wylie, D. P. LARC/Owens, T. L.

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAG 1-882 University of Wisconsin - Madison 5833
Analyze high spectral resolution lidar data acquired during the FIRE CIRRUS experiment
Period Obligations
05/04/88-05/03/89 FY88: \$20,000 TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Eloranta, E. W. LARC/Owens, T. L. 31-Atmos Sci
LARC/Wagner, H. S.

NAG 2-265 University of Wisconsin - Madison 5834
Dynamical behavior of the polarization features on Venus from the orbiter cloud photopolarimeter OCPP data
Period Obligations
10/01/83-03/31/89 FY88: TOTAL: \$136,662
Prin. Invest. NASA Tech. Officer CASE Category
Limaye, S. ARC/Craig, R. A. 11-Astronomy
ARC/Fimmel, R. O.

NAG 2-266 University of Wisconsin - Madison 5835
Diagnostic modeling of meridional circulation on Venus
Period Obligations
10/01/83-12/31/88 FY88: TOTAL: \$79,896
Prin. Invest. NASA Tech. Officer CASE Category
Revercomb, H. ARC/Craig, R. A. 11-Astronomy
ARC/Fimmel, R. O.

NAG 2-358 University of Wisconsin - Madison 5836
He II fluid dynamics studies for spaceborne cryogenic systems
Period Obligations
07/01/85-12/31/88 FY88: \$66,000 TOTAL: \$300,000
Prin. Invest. NASA Tech. Officer CASE Category
Vansciver, S. W. ARC/Kittel, P. 46-Mech Engr
Walstrom, P. L. ARC/Mansfield, J. A.

NAG 2-459 University of Wisconsin - Madison 5837
Microgravity effect on cytoskeletal organization during fertilization and early development and on embryonic skeletal calcium deposition
Period Obligations
04/01/87-04/14/88 FY88: TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
Schatten, G. ARC/Winget, C. M. 51-Biological Sci
Schatten, H. ARC/Ballard, R. W.

NAG 3-436 University of Wisconsin - Madison 5838
Containerless-processing of under cooled melts
Period Obligations
09/01/83-09/30/87 FY88: TOTAL: \$359,992
Prin. Invest. NASA Tech. Officer CASE Category
Perepezko, J. H. LERC/Glasgow, T. K. 47-Materials Engr
LERC/Harf, F. H.

NAG 3-718 University of Wisconsin - Madison 5839
Design and evaluation of an apparatus for experiments on the vaporization of fuel droplets in a super critical environment at microgravity conditions
Period Obligations
04/15/86-07/04/89 FY88: \$155,000 TOTAL: \$483,600
Prin. Invest. NASA Tech. Officer CASE Category
Farrell, P. V. LERC/Stockner, D. P. 49-Engr, NEC
Borman, G.
Foster, D. E.

NAG 3-786 University of Wisconsin - Madison 5840
Design and test of bidirectional speed and torque control of induction machines operating from a high frequency link converter
Period Obligations
03/05/87-03/03/89 FY88: \$75,000 TOTAL: \$145,000
Prin. Invest. NASA Tech. Officer CASE Category
Lipo, T. A. LERC/Sundberg, G. R. 45-Elec Engr
Sul, S. K.

NAG 3-804 University of Wisconsin - Madison 5841
High power converter topologies for space applications
Period Obligations
07/01/87-06/30/89 FY88: \$71,290 TOTAL: \$126,410
Prin. Invest. NASA Tech. Officer CASE Category
Divan, D. M. LERC/Myers, I. T. 45-Elec Engr
LERC/Baumann, E. D.

NAG 3-940 University of Wisconsin - Madison 5842
Modelling of ac induction
Period Obligations
10/01/88-09/30/89 FY88: \$73,000 TOTAL: \$73,000
Prin. Invest. NASA Tech. Officer CASE Category
Lipo, T. A. LERC/Hansen, I. G. 45-Elec Engr
Novotny, D. W.

NAG 5-23 University of Wisconsin - Madison 5843
Analysis of three-dimensional thunderstorm model output in terms of geosynchronous satellite observations
Period Obligations
03/01/80-04/30/89 FY88: \$35,000 TOTAL: \$267,743
Prin. Invest. NASA Tech. Officer CASE Category
Schlesinger, R. E. GSFC/Adler, R. F. 31-Atmos Sci

NAG 5-81 University of Wisconsin - Madison 5844
Resolution studies and energy diagnostics of global data and climate model simulations
Period Obligations
06/15/80-12/31/88 FY88: \$204,000 TOTAL: \$740,880
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, D. R. GSFC/Atlas, R. M. 31-Atmos Sci

NAG 5-186 University of Wisconsin - Madison 5845
Ultraviolet studies with satellite data
Period Obligations
06/15/81-08/31/89 FY88: \$90,500 TOTAL: \$500,366
Prin. Invest. NASA Tech. Officer CASE Category
Savage, B. D. GSFC/Kondo, Y. 11-Astronomy
Danly, L.
Massa, D. L.

NAG 5-316 University of Wisconsin - Madison 5846
New mathematical methods for variational objective analysis of meteorological information
Period Obligations
05/01/83-12/31/88 FY88: \$69,000 TOTAL: \$514,170
Prin. Invest. NASA Tech. Officer CASE Category
Wahba, G. GSFC/Pfaendtner, J. 31-Atmos Sci
Johnson, R.

NAG 5-385 University of Wisconsin - Madison 5847
Research relative to the use of available potential energy to evaluate global data sets
Period Obligations
01/01/84-01/31/89 FY88: \$66,000 TOTAL: \$203,089
Prin. Invest. NASA Tech. Officer CASE Category
Horn, L. H. GSFC/Atlas, R. 31-Atmos Sci
Whittaker, L. M.

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAG 5-580 University of Wisconsin - Madison 5848
Determine precipitation rates from visible and infrared satellite images of clouds

<i>Period</i>	<i>Obligations</i>	
07/01/85-11/30/88	FY88: TOTAL: \$199,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinman, J. A.	GSFC/Cahalan, R.	31-Atmos Sci
Chin, R. T.		

NAG 5-832 University of Wisconsin - Madison 5856
The fundamental characteristics of interstellar matter

<i>Period</i>	<i>Obligations</i>	
08/15/86-08/31/89	FY88: \$16,000 TOTAL: \$36,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cardelli, J. A.	GSFC/Kondo, Y.	11-Astronomy
Brugel, E. W.		

NAG 5-581 University of Wisconsin - Madison 5849
An investigation of the broad-line regions of subject I galaxies

<i>Period</i>	<i>Obligations</i>	
07/15/85-01/14/88	FY88: TOTAL: \$10,879	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mathis, J. S.	GSFC/Kondo, Y.	11-Astronomy
Clayton, G. C.		

NAG 5-854 University of Wisconsin - Madison 5857
Surface energy balance

<i>Period</i>	<i>Obligations</i>	
10/01/86-02/28/89	FY88: \$68,000 TOTAL: \$176,461	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Diak, G. R.	GSFC/Oseroff, H.	19-Phys Sci, NEC

NAG 5-594 University of Wisconsin - Madison 5850
Investigation of single photon calorimeters for X ray spectroscopy

<i>Period</i>	<i>Obligations</i>	
08/01/85-09/30/89	FY88: \$50,000 TOTAL: \$619,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCammon, D.	GSFC/Glasser, C. A.	13-Physics
Guckel, H.		
Kraushaar, W.		

NAG 5-902 University of Wisconsin - Madison 5858
Lidar measurements of boundary layer aerosol scattering and clouds during project life

<i>Period</i>	<i>Obligations</i>	
05/01/87-12/31/88	FY88: \$60,000 TOTAL: \$122,347	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eloranta, E. W.	GSFC/Wetzel, P. J.	39-Env Sci, NEC
	GSFC/Hall, F.	

NAG 5-629 University of Wisconsin - Madison 5851
Cosmic X-ray physics

<i>Period</i>	<i>Obligations</i>	
01/01/85-12/31/88	FY88: \$270,000 TOTAL: \$970,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCammon, D.	GSFC/Early, L. J.	13-Physics
Cox, D. P.	GSFC/Pless, R. H.	
Kraushaar, W. L.		

NAG 5-1031 University of Wisconsin - Madison 5859
He II fluid acquisition with applications to liquid helium fluid management in space

<i>Period</i>	<i>Obligations</i>	
01/15/88-01/14/89	FY88: \$100,000 TOTAL: \$100,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Van Sciver, S. W.	GSFC/Dipirro, M. J.	13-Physics
	GSFC/Castles, S. H.	

NAG 5-647 University of Wisconsin - Madison 5852
Development and flight of wide field imaging survey polarimeter wisp

<i>Period</i>	<i>Obligations</i>	
03/01/88-02/28/89	FY88: \$270,000 TOTAL: \$270,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nordsieck, K. H.	GSFC/Early, L. J.	13-Physics
	GSFC/Pless, R. H.	

NAG 5-1048 University of Wisconsin - Madison 5860
The measurement of atomic transition probabilities of metal atoms and ions of astrophysical interest

<i>Period</i>	<i>Obligations</i>	
06/01/88-11/30/88	FY88: \$23,000 TOTAL: \$23,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lawler, J. E.	GSFC/Leckrone, D. S.	13-Physics

NAG 5-742 University of Wisconsin - Madison 5853
Meteorological satellite product support and research for project GALE

<i>Period</i>	<i>Obligations</i>	
04/15/86-04/14/88	FY88: TOTAL: \$255,998	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, W. L.	GSFC/Uccellini, L.	31-Atmos Sci
Velden, C. S.	GSFC/Simpson, J.	
Menzel, W. P.		

NAG 5-1078 University of Wisconsin - Madison 5861
A new connection between visual and ultraviolet interstellar extinction

<i>Period</i>	<i>Obligations</i>	
09/15/88-09/14/89	FY88: \$14,000 TOTAL: \$14,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clayton, G.	GSFC/Kondo, Y.	11-Astronomy

NAG 5-745 University of Wisconsin - Madison 5854
Improved hydroxy radical measurements

<i>Period</i>	<i>Obligations</i>	
03/15/86-01/31/89	FY88: TOTAL: \$36,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roesler, F. L.	GSFC/Heaps, W. S.	31-Atmos Sci

NAG 8-534 University of Wisconsin - Madison 5862
Analysis of HEAO 2 solid state spectrometer observations of early type stars

<i>Period</i>	<i>Obligations</i>	
06/01/85-11/30/88	FY88: TOTAL: \$19,991	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	MSFC/Johnson, W. G.	11-Astronomy

NAG 5-804 University of Wisconsin - Madison 5855
Stellar winds from rapidly rotating hot stars

<i>Period</i>	<i>Obligations</i>	
07/15/86-10/14/87	FY88: TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Friend, D. B.	GSFC/Kondo, Y.	11-Astronomy
Massa, D.		
Poe, C. H.		

NAG 8-602 University of Wisconsin - Madison 5863
The X ray spectra of early type stars interpreted as arising from strong shocks in the winds

<i>Period</i>	<i>Obligations</i>	
09/01/86-08/31/89	FY88: TOTAL: \$28,202	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	MSFC/Potter, P. Y.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAG 8-705 University of Wisconsin - Madison 5864
Crystal growth by two modified floating zone processes
Period *Obligations*
03/01/88-02/28/89 FY88: \$74,770 TOTAL: \$74,770
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kou, S. MSFC/Lehoczy, S. L. 47-Materials Engr

NAG 8-725 University of Wisconsin - Madison 5865
Comparative X ray and optical studies of nearby Abell clusters
Period *Obligations*
06/01/88-05/31/89 FY88: \$31,616 TOTAL: \$31,616
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoessel, J. G. MSFC/Harper, B. 11-Astronomy

NAG 9-171 University of Wisconsin - Madison 5866
Investigations in sensory augmentation devices
Period *Obligations*
07/15/86-11/01/88 FY88: TOTAL: \$154,983
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bach-y-rita, P. JSC/Tr, T. O. 54-Env Biology

NAG 9-189 University of Wisconsin - Madison 5867
Fluid inclusions and crustal evolution in the Archean Pikwitonei domain Manitoba
Period *Obligations*
02/01/87-03/01/89 FY88: \$19,500 TOTAL: \$39,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, P. E. JSC/Phinney, W. C. 32-Geological Sci

NAGW 283 University of Wisconsin - Madison 5868
Studies of the supermassive central star of the 30 poradus nebula and related objects
Period *Obligations*
02/01/82-11/30/87 FY88: TOTAL: \$77,916
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cassinelli, J. P. HQ-EZ/Stencel, R. E. 11-Astronomy
Mathis, J. S. HQ-EZ/Weiler, E. J.
Savage, B. D.

NAGW 422 University of Wisconsin - Madison 5869
Studies of ultraviolet intrinsic polarization of stars
Period *Obligations*
04/01/83-02/28/89 FY88: \$34,000 TOTAL: \$195,619
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cassinella, V. HQ-EZ/Stachnik, R. V. 11-Astronomy
HQ-EZ/Weiler, E. J.

NAGW 695 University of Wisconsin - Madison 5870
Ground-based obs of comet Halley/Giacovini-Finner/Jup 10
Period *Obligations*
01/15/85-01/14/89 FY88: \$45,000 TOTAL: \$170,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scherb, F. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAGW 756 University of Wisconsin - Madison 5871
Statistical analysis of stratospheric ozone and temperature data for trends
Period *Obligations*
07/01/85-09/30/88 FY88: \$45,000 TOTAL: \$155,005
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reinsel, G. C. HQ-EE/Jackman, C. H. 31-Atmos Sci
HQ-EE/Butler, D. M.

NAGW 872 University of Wisconsin - Madison 5872
No cost extension satellite imagery
Period *Obligations*
02/17/86-02/16/89 FY88: TOTAL: \$94,267
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weinman, J. A. HQ-E/Rosendhal, J. D. 31-Atmos Sci
HQ-EP/Konkel, R. M.

NAGW 905 University of Wisconsin - Madison 5873
Charged particle acceleration mechanisms in space plasmas double layers
Period *Obligations*
06/01/86-05/31/89 FY88: \$75,000 TOTAL: \$190,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hershkowitz, N. HQ-ES/Mellott, M. M. 13-Physics
HQ-ES/Parks, G. K.

NAGW 920 University of Wisconsin - Madison 5874
Use of microwave satellite data to study variations in rainfall over the Indian ocean
Period *Obligations*
08/01/86-11/30/88 FY88: \$90,227 TOTAL: \$188,141
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, D. W. HQ-EE/Tuyahov, A. J. 31-Atmos Sci

NAGW 937 University of Wisconsin - Madison 5875
Cloud level circulation on Venus
Period *Obligations*
07/01/86-06/30/89 FY88: \$40,370 TOTAL: \$118,514
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Limaye, S. S. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NAGW 975 University of Wisconsin - Madison 5876
A center for the commercial development of space
Period *Obligations*
09/01/86-08/31/89 FY88: \$2,058,000 TOTAL: \$3,058,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bollinger, J. G. HQ-IC/Oran, W. 51-Biological Sci
Suomi, V. HQ/Whitten, R. P.

NAGW 1318 University of Wisconsin - Madison 5877
U.S. Europe multi-purpose network gateways
Period *Obligations*
06/01/88-12/30/88 FY88: \$38,988 TOTAL: \$38,988
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Landweber, L. H. HQ-EC/Villasenor, A. J. 22-Computer Science

NAGW 1411 University of Wisconsin - Madison 5878
Dynamical investigations of the middle atmosphere with a 2-D model
Period *Obligations*
09/01/88-08/31/89 FY88: \$61,999 TOTAL: \$61,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hitchman, M. H. HQ-EE/Prather, M. J. 31-Atmos Sci
HQ-EE/Watson, R.

NAS 1-17688 University of Wisconsin - Madison 5879
Acquisition of GOES east measurements for the Earth radiation budget experiment (ERBE)
Period *Obligations*
11/06/84-06/30/88 FY88: TOTAL: \$203,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. LARC/Keynton, R. J. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAS 1-18272 University of Wisconsin - Madison 5880
Earth radiation budget experiment ERBE
Period *Obligations*
05/05/86-05/31/93 FY88: \$104,000 TOTAL: \$421,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, W. L. LARC/Cooper, J. E. 31-Atmos Sci
LARC/Barkstrom, B. R.

NAS 8-34732 University of Wisconsin - Madison 5888
Cooperative visible infrared spin scan radiometer atmospheric sounder
Period *Obligations*
07/29/82-12/31/87 FY88: TOTAL: \$331,686
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. MSFC/Greene, W. M. 31-Atmos Sci
Menzel, P. MSFC/Smith, G. T.
Smith, W. L.

NAS 2-12078 University of Wisconsin - Madison 5881
Co-investigator support on the Galileo net flux radiometer experiment
Period *Obligations*
01/01/85-12/31/89 FY88: \$717,971 TOTAL: \$1,216,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sromovsky, L. A. ARC/Twarowski, R. J. 99-Multi-Discip

NAS 8-35981 University of Wisconsin - Madison 5889
Studies of lightning data in conjunction with geostationary satellite data
Period *Obligations*
06/23/84-12/22/87 FY88: TOTAL: \$112,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, D. MSFC/Christian, H. J. 31-Atmos Sci
Mosher, F. R. MSFC/Arnold, J. E.

NAS 5-24487 University of Wisconsin - Madison 5882
High speed photometer for the space telescope printer
Period *Obligations*
03/08/78-09/30/89 FY88: \$600,000 TOTAL: \$9,964,610
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bliss, R. GSFC/Barr, A. 11-Astronomy
GSFC/Sours, W.

NAS 8-36168 University of Wisconsin - Madison 5890
Meteorological satellite products support for project COHMEX
Period *Obligations*
04/25/86-10/24/88 FY88: TOTAL: \$146,461
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, W. L. MSFC/Greene, W. M. 31-Atmos Sci
Verden, C. L. MSFC/Smith, G. T.

NAS 5-26078 University of Wisconsin - Madison 5883
Generate an investigation development plan and establish preliminary interfaces for the diffuse soft X-ray Bragg spectrometer
Period *Obligations*
03/10/80-04/03/93 FY88: \$680,000 TOTAL: \$5,790,372
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kraushaar, W. L. GSFC/Mercanti, E. 11-Astronomy

NAS 8-36169 University of Wisconsin - Madison 5891
Determination of atmospheric moisture structure and infrared cooling rotors from high resolution mams radiance data
Period *Obligations*
09/19/86-09/18/89 FY88: \$150,000 TOTAL: \$316,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Menzel, W. P. MSFC/Greene, W. M. 31-Atmos Sci
MSFC/Smith, G. T.

NAS 5-26777 University of Wisconsin - Madison 5884
Development phase of the Wisconsin ultraviolet photo polarimeter experiment (WUPPE)
Period *Obligations*
09/04/81-09/30/94 FY88: \$1,210,000 TOTAL: \$8,521,760
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Code, A. D. MSFC/Owens, J. 11-Astronomy
Nordsieck, K.

NAS 8-36292 University of Wisconsin - Madison 5892
Management and display of four-dimensional environmental data sets using mcdas
Period *Obligations*
02/28/86-02/27/89 FY88: \$156,538 TOTAL: \$707,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. MSFC/Greene, W. M. 31-Atmos Sci
Hibbard, W. MSFC/Smith, G. T.
Krauss, R. J.

NAS 5-29368 University of Wisconsin - Madison 5885
Science verification calibration and guaranteed time observations of the high resolution spectrograph
Period *Obligations*
09/16/86-09/15/91 FY88: \$81,000 TOTAL: \$212,671
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Savage, B. D. GSFC/Vitagliano, H. D. 11-Astronomy

NAS 8-36547 University of Wisconsin - Madison 5893
Investigation of the detection of rotating thunderstorms by storm top features as observed by meteorological satellite
Period *Obligations*
09/27/85-09/15/88 FY88: TOTAL: \$175,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, C. E. MSFC/Greene, W. M. 31-Atmos Sci
MSFC/Smith, G. T.

NAS 5-29448 University of Wisconsin - Madison 5886
Guaranteed time observation of space telescope
Period *Obligations*
05/01/86-05/31/90 FY88: \$54,000 TOTAL: \$88,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bless, R. GSFC/Leckrone, D. A. 42-Astro Engr

NAS 9-17642 University of Wisconsin - Madison 5894
Meteorological data display systems
Period *Obligations*
05/15/86-07/01/89 FY88: \$808,210 TOTAL: \$3,757,110
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Young, J. T. JSC/Whitehead, V. 31-Atmos Sci

NAS 5-30131 University of Wisconsin - Madison 5887
CO investigator for space telescope imaging spectrograph program
Period *Obligations*
09/22/87-09/30/89 FY88: \$2,000 TOTAL: \$3,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roesler, F. GSFC/Vitagliano, H. D. 11-Astronomy

NCA 2-115 University of Wisconsin - Madison 5895
Rules for simulation of auditory space over headphones
Period *Obligations*
05/01/86-04/30/88 FY88: \$15,000 TOTAL: \$72,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wightman, F. L. ARC/Wenzel, E. 69-Psych, NEC

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NCC 2-301 University of Wisconsin - Madison 5896
Growth of potatoes for CELSS
Period *Obligations*
05/01/84-11/30/88 FY88: \$125,635 TOTAL: \$584,023
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tibbitts, T. W. ARC/MacElroy, R. D. 51-Biological Sci
Von Elbe, J.
Palta, J. P.

NCC 2-542 University of Wisconsin - Madison 5897
Psychophysical evaluation of three dimensional auditory displays
Period *Obligations*
05/01/88-04/30/89 FY88: \$100,009 TOTAL: \$100,009
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wightman, F. L. ARC/Wenzel, E. M. 69-Psych, NEC

NCC 8-11 University of Wisconsin - Madison 5898
The role of current and future remote sensing data systems in numerical meteorology
Period *Obligations*
09/28/87-07/30/88 FY88: \$41,706 TOTAL: \$41,706
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Diak, G. MSFC/Robertson, F. 31-Atmos Sci

NCC 8-12 University of Wisconsin - Madison 5899
The role of current and future remote sensing data systems in numerical meteorology
Period *Obligations*
03/25/88-03/25/89 FY88: \$65,000 TOTAL: \$65,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Diak, G. MSFC/Robertson, F. 31-Atmos Sci

NGR 50-002-189 University of Wisconsin - Madison 5900
Cloud image processing for planetary flybys
Period *Obligations*
01/19/72-05/31/88 FY88: TOTAL: \$826,393
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sromov, L. A. HQ-EL/Fox, K. 31-Atmos Sci
HQ-EL/Quaide, W. L.

NGT 00-050-031 University of Wisconsin - Madison 5901
NASA graduate student researchers program
Period *Obligations*
06/01/86-09/01/87 FY88: TOTAL: \$17,923
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, W. L. HQ-LE/Owens, F. C. 31-Atmos Sci

NGT 00-050-267 University of Wisconsin - Madison 5902
NASA graduate student researchers program
Period *Obligations*
08/01/88-07/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becker, W. HQ-XE/Owens, F. C. 51-Biological Sci

NGT 00-070-024 University of Wisconsin - Madison 5903
Graduate student researchers underrepresented minority focus program
Period *Obligations*
08/01/87-01/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Savage, B. D. HQ-XE/Owens, F. C. 11-Astronomy

NGT 00-070-093 University of Wisconsin - Madison 5904
Graduate student researchers underrepresented minority focus program
Period *Obligations*
09/01/88-08/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vailas, A. HQ-XE/Owens, F. C. 99-Multi-Discip

NGT 50-002-802 University of Wisconsin - Madison 5905
NASA graduate student researchers program
Period *Obligations*
06/01/85-05/31/88 FY88: TOTAL: \$55,067
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herman, G. F. HQ-LE/Owens, F. C. 39-Env Sci, NEC

NAG 8-617 University of Wisconsin - Milwaukee 5906
Turbulence modeling and its application to the Space Shuttle main engine
Period *Obligations*
01/29/87-01/29/88 FY88: \$26,561 TOTAL: \$51,924
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Amano, R. MSFC/Schafer, C. F. 46-Mech Engr
MSFC/Kaufman, J. W.

NAGW 839 University of Wisconsin - Milwaukee 5907
Isolation and characterization of methanotrophs capable of growth at low methane concentrations
Period *Obligations*
10/01/85-12/31/88 FY88: \$94,500 TOTAL: \$296,244
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lidstrom, M. E. HQ-EE/Kurylo, M. J. 39-Env Sci, NEC
Remsen, C. C. HQ-EE/Watson, R. T.

NAGW 1047 University of Wisconsin - Milwaukee 5908
Remote sensing of biochemical cycle the manganese cycle in freshwater lake
Period *Obligations*
02/01/87-01/31/89 FY88: \$48,446 TOTAL: \$97,806
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nealson, K. H. HQ-EE/Wickland, D. E. 54-Env Biology
Richardson, L. HQ-EE/Ruzek, M. J.
Mills, E. L.

NAGW 1063 University of Wisconsin - Milwaukee 5909
Summer program in planetary biology and microbial ecology biogeochemistry of metals
Period *Obligations*
04/15/87-07/14/88 FY88: TOTAL: \$109,054
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nealson, K. H. HQ-EB/Averner, M. M. 51-Biological Sci

WYOMING

NAG 1-277 University of Wyoming 5910
Investigation of the relations between neat resin and advanced composite mechanical properties
Period *Obligations*
05/03/82-10/31/88 FY88: \$53,978 TOTAL: \$219,511
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zimmerman, R. S. LARC/Johnston, N. J. 47-Materials Engr
Adams, D. F. LARC/Hinkley, J. A.

**NASA'S UNIVERSITY PROGRAM
WYOMING (Continued)**

NAG 1-674 University of Wyoming 5911
Thermal and spectrum loading effects on strain energy release rate during fatigue testing utilizing the edge delamination test
Period *Obligations*
07/01/86-09/30/88 FY88: TOTAL: \$49,596
Prin. Invest. NASA Tech. Officer CASE Category
Zimmerman, R. S. LARC/O'Brien, T. K. 41-Aero Engr
Adams, D. F. LARC/Johnston, N. J.

NAG 2-134 University of Wyoming 5912
The study of star formation and molecular cloud evolution using the Kuiper Airborne Observatory
Period *Obligations*
10/01/81-04/30/89 FY88: \$55,464 TOTAL: \$281,410
Prin. Invest. NASA Tech. Officer CASE Category
Thronson, H. A., Jr. ARC/Haughney, L. C. 11-Astronomy

NAG 2-355 University of Wyoming 5913
Biochemical process in sagebrush steppe: Interaction of terrain, vegetation and chemical cycles
Period *Obligations*
06/01/85-02/29/88 FY88: TOTAL: \$188,065
Prin. Invest. NASA Tech. Officer CASE Category
Reiners, W. A. ARC/Matson, P. A. 59-Life Sci, NEC

NAG 2-470 University of Wyoming 5914
Single fiber tension and creep testing of metal coated ceramic fibers at various temperatures
Period *Obligations*
07/01/87-09/30/88 FY88: TOTAL: \$24,692
Prin. Invest. NASA Tech. Officer CASE Category
Zimmerman, R. S. ARC/Kourtidis, D. A. 47-Materials Engr
Adams, D. F.

NAG 5-913 University of Wyoming 5915
An airborne study of microwave surface sensing and boundary layer heat and moisture fluxes
Period *Obligations*
06/01/87-03/31/89 FY88: \$72,186 TOTAL: \$188,237
Prin. Invest. NASA Tech. Officer CASE Category
Kelly, R. D. GSFC/Owe, M. 39-Env Sci, NEC
Moore, R. K. GSFC/Hall, F.

NAGW 874 University of Wyoming 5916
Determination of the thermophysical properties and pole orientation of asteroids with mid-infrared polarimetry
Period *Obligations*
03/01/86-02/29/88 FY88: TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, P. E. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAGW 918 University of Wyoming 5917
Antarctic winter ozone aerosol balloon flights
Period *Obligations*
05/01/88-02/29/88 FY88: TOTAL: \$449,997
Prin. Invest. NASA Tech. Officer CASE Category
Hofmann, D. J. HQ-EE/Margitan, J. J. 31-Atmos Sci
Rosen, J. M. HQ-EE/Kurylo, M. J.

NAGW 1276 University of Wyoming 5918
Infrared speckle interferometry and spectroscopy of Io
Period *Obligations*
01/01/88-12/31/88 FY88: \$24,987 TOTAL: \$24,987
Prin. Invest. NASA Tech. Officer CASE Category
Howell, R. R. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Rahe, J. H.

NAS 1-16305 University of Wyoming 5919
Science support for Earth radiation budget satellite/stratospheric aerosol and gas experiment
Period *Obligations*
06/27/80-05/31/87 FY88: TOTAL: \$336,800
Prin. Invest. NASA Tech. Officer CASE Category
Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NAS 1-17735 University of Wyoming 5920
Balloon borne aerosol measurements in support of SAGE II mission
Period *Obligations*
07/16/84-12/31/88 FY88: TOTAL: \$216,033
Prin. Invest. NASA Tech. Officer CASE Category
Hoffman, D. J. LARC/Owens, T. L. 31-Atmos Sci
LARC/McMaster, L. R.

NAS 1-18495 University of Wyoming 5921
Erbs SAGE II scientific investigation
Period *Obligations*
05/04/87-05/03/90 FY88: \$20,000 TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Pepin, T. LARC/Maddrea, G. L. 31-Atmos Sci
LARC/McMaster, L. R.

PUERTO RICO

NAGW 849 University of Puerto Rico - Mayaguez 5922
Remote sensing research program
Period *Obligations*
01/01/86-06/30/89 FY88: TOTAL: \$300,000
Prin. Invest. NASA Tech. Officer CASE Category
Gonzales-Iagoo H, J. G. HQ-EE/Tuyahov, A. J. 39-Env Sci, NEC
Lawrence, W.

NCC 2-496 University of Puerto Rico - Mayaguez 5923
The role of aviation technology in the Caribbean basin
Period *Obligations*
08/01/87-07/31/88 FY88: \$8,774 TOTAL: \$25,970
Prin. Invest. NASA Tech. Officer CASE Category
Hess, R. A. ARC/Alton, L. R. 41-Aero Engr
Wayland, K.

NGT 00-050-255 University of Puerto Rico - Mayaguez 5924
NASA graduate student researchers program
Period *Obligations*
01/04/88-01/03/89 FY88: \$16,600 TOTAL: \$16,600
Prin. Invest. NASA Tech. Officer CASE Category
Ortiz, J. HQ-XE/Owens, F. C. 45-Elec Engr

NGT 00-070-076 University of Puerto Rico - Mayaguez 5925
Graduate student researchers underrepresented minority focus program
Period *Obligations*
08/01/87-07/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Smith, R. W. HQ-XE/Owens, F. C. 21-Mathematics

NGT 00-070-077 University of Puerto Rico - Mayaguez 5926
Graduate student researchers underrepresented minority focus program
Period *Obligations*
08/01/87-07/31/88 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Smith, R. W. HQ-XE/Owens, F. C. 21-Mathematics

**NASA'S UNIVERSITY PROGRAM
PUERTO RICO (Continued)**

NGT 51-001-800 University of Puerto Rico - Mayaguez 5927
NASA graduate student researchers program
Period *Obligations*
10/01/85-09/30/88 FY88: \$15,909 TOTAL: \$47,831
Prin. Invest. NASA Tech. Officer CASE Category
Gonzalez, J. G. HQ-LE/Owens, F. C. 51-Biological Sci

NAS 5-28746 University of Puerto Rico 5928
Biomass accumulation in secondary tropical forest in early successional stages
Period *Obligations*
07/18/85-11/17/88 FY88: TOTAL: \$117,300
Prin. Invest. NASA Tech. Officer CASE Category
Waide, R. B. GSFC/Oseroff, H. 39-Env Sci, NEC

NGT 00-050-256 University of Puerto Rico 5929
NASA graduate student researchers program
Period *Obligations*
01/01/88-12/31/89 FY88: \$18,000 TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Fetcher, N. HQ-XE/Owens, F. C. 51-Biological Sci

NAGW 752 University of Toronto 5934
Development of failure criteria for graphite and Kevlar triaxial woven fabric laminates
Period *Obligations*
04/01/85-09/30/88 FY88: TOTAL: \$51,400
Prin. Invest. NASA Tech. Officer CASE Category
Tennyson, R. C. LARC/Baker, D. J. 47-Materials Engr
LARC/Dexter, H. B.

NAGW 1234 University of Toronto 5935
Extrapolation of process models of evapotranspiration and net primary productivity in coniferous forests to large spatial scales
Period *Obligations*
11/15/87-11/14/88 FY88: \$44,036 TOTAL: \$44,036
Prin. Invest. NASA Tech. Officer CASE Category
Band, L. E. HQ-EE/Wickland, D. E. 39-Env Sci, NEC
Running, S. W. HQ-EE/Wickland, M. J.
Peterson, D. L.

NAGW 575 University of Waterloo 5936
Critical evaluation of the unsteady aerodynamics approach to dynamic stability at high angles of attack
Period *Obligations*
03/01/84-02/29/88 FY88: TOTAL: \$95,691
Prin. Invest. NASA Tech. Officer CASE Category
Hui, W. H. ARC/Tobak, M. 41-Aero Engr
ARC/Chapman, G. T.

AUSTRALIA

NAGW 674 University of Queensland 5930
Shock tunnel studies of scramjet phenomena
Period *Obligations*
01/01/85-12/31/88 FY88: \$418,670 TOTAL: \$991,688
Prin. Invest. NASA Tech. Officer CASE Category
Stalker, R. J. LARC/Anderson, G. Y. 41-Aero Engr
Morgan, R. G. LARC/Rogers, R. C.
Paul, A.

NAGW 686 University of Queensland 5931
Radiation resistance of high performance polymers
Period *Obligations*
12/01/84-11/30/86 FY88: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
O'donnell, J. H. LARC/Sykes, G. F. 12-Chemistry

NAGW 728 University of Sydney 5932
Further development and establishment of rarefied flow field analysis capability
Period *Obligations*
02/01/85-12/31/88 FY88: TOTAL: \$280,000
Prin. Invest. NASA Tech. Officer CASE Category
Bird, G. A. LARC/Jones, J. J. 41-Aero Engr
LARC/Moss, J. N.

NAGW 961 University of Waterloo 5937
Robust and restructurable controller design for aircraft
Period *Obligations*
10/01/86-11/30/87 FY88: TOTAL: \$49,908
Prin. Invest. NASA Tech. Officer CASE Category
Vidyasagar, M. LARC/Murphy, P. C. 41-Aero Engr
LARC/Ostroff, A. J.

NAS 5-30294 York University 5938
Hubble space telescope quanted time observations program support
Period *Obligations*
01/20/88-09/30/92 FY88: \$155,000 TOTAL: \$155,000
Prin. Invest. NASA Tech. Officer CASE Category
Caldwell, J. J. GSFC/Kalinowski, J. K. 42-Astro Engr

CANADA

NAGW 429 University of Toronto 5933
Application of fuzzy sets to measure pilot mental workload behavior
Period *Obligations*
12/15/82-02/29/88 FY88: TOTAL: \$182,846
Prin. Invest. NASA Tech. Officer CASE Category
Moray, N. ARC/Hart, S. G. 69-Psych, NEC

CHILE

NAS 5-1925 University of Chile 5939
Maintenance and operation of minitrack facilities
Period *Obligations*
09/21/62-10/31/89 FY88: \$3,670,000 TOTAL: \$80,036,306
Prin. Invest. NASA Tech. Officer CASE Category
Diaz, E. GSFC/Bodin, W. J. 99-Multi-Discip
GSFC/Spintman, D.

GREAT BRITAIN

NAGW 1014 Cambridge University 5940
Fatigue crack closure in an aluminum alloy and a titanium alloy
Period *Obligations*
05/01/87-10/31/88 FY88: \$49,200 TOTAL: \$49,200
Prin. Invest. NASA Tech. Officer CASE Category
Fleck, N. A. LARC/Newman, J. C. 46-Mech Engr
LARC/Crews, J. H.

**NASA'S UNIVERSITY PROGRAM
GREAT BRITAIN (Continued)**

NAGW 581 Imperial College of Science & Technology 5941

Vortex boundary layer interactions

<i>Period</i>	<i>FY88:</i>	<i>Obligations</i>	<i>TOTAL:</i>
03/01/84-08/30/88			\$156,715
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bradshaw, P.	ARC/Peake, D. J.	41-Aero Engr	
	ARC/Erickson, G.		

NORWAY

NAGW 1315 University of Oslo 5947

The effect of supersonic transportation the stratospheric ozone layer

<i>Period</i>	<i>FY88:</i>	<i>Obligations</i>	<i>TOTAL:</i>
05/01/88-04/30/89	\$75,000		\$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Isaksen, I. S.	LARC/Callis, L. B.	31-Atmos Sci	
	LARC/McCormick, M. P.		

NAGW 478 University of Wales 5942

Finite element methods of analysis for high speed viscous compressible flow

<i>Period</i>	<i>FY88:</i>	<i>Obligations</i>	<i>TOTAL:</i>
10/01/83-09/30/89	\$79,325		\$249,913
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Morgan, K.	LARC/Bey, K. S.	29-Math/Computer, NEC	
Peraire, J.	LARC/Wieting, A. R.		
Zienkiewicz, O. C.			

NCCW 2 University of Wales 5943

Computer program for buckling of stiffened composite panels with shear loading

<i>Period</i>	<i>FY88:</i>	<i>Obligations</i>	<i>TOTAL:</i>
10/01/81-01/31/89	\$57,140		\$165,340
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Williams, F. W.	LARC/Starnes, J. H.	46-Mech Engr	
	LARC/Anderson, M. S.		

NSG 7172 University of Southampton 5944

Self-streamlining of the test section of a transonic wind tunnel

<i>Period</i>	<i>FY88:</i>	<i>Obligations</i>	<i>TOTAL:</i>
10/01/75-09/30/88	\$55,340		\$519,221
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Goodyer, M. J.	LARC/Boyd, R. P.	41-Aero Engr	
	LARC/Ray, E. J.		

NSG 7523 University of Southampton 5945

Investigations into the technology required to raise reliability levels of magnetic suspension system

<i>Period</i>	<i>FY88:</i>	<i>Obligations</i>	<i>TOTAL:</i>
01/01/79-09/30/88			\$397,266
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Goodyer, M. J.	LARC/Boyd, R. P.	41-Aero Engr	
	LARC/Ray, E. J.		

ISRAEL

NCCW 4 Israel Institute of Technology 5946

Model for medium range air combat analysis

<i>Period</i>	<i>FY88:</i>	<i>Obligations</i>	<i>TOTAL:</i>
11/01/84-10/31/86	\$25,000		\$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Shinar, J.	ARC/Ardema, M. D.	41-Aero Engr	

NASA'S UNIVERSITY PROGRAM

APPENDIX

CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

PHYSICAL SCIENCES	ENVIRONMENTAL SCIENCES (Terrestrial and extraterrestrial)	LIFE SCIENCES	SOCIAL SCIENCES
11 ASTRONOMY	31 ATMOSPHERIC SCIENCES	51 BIOLOGICAL SCIENCES	71 ANTHROPOLOGY
12 CHEMISTRY	32 GEOLOGICAL SCIENCES	54 ENVIRONMENTAL BIOLOGY	72 ECONOMICS
13 PHYSICS	33 OCEANOGRAPHY	55 AGRICULTURAL SCIENCES	73 HISTORY
19 PHYSICAL SCIENCES, NEC*	39 ENVIRONMENTAL SCIENCES, NEC*	56 MEDICAL SCIENCES	74 LINGUISTICS
		59 LIFE SCIENCES, NEC*	75 POLITICAL SCIENCE
			76 SOCIOLOGY
			79 SOCIAL SCIENCE, NEC*
MATHEMATICAL/COMP SCI	ENGINEERING	PSYCHOLOGY	OTHER SCIENCES**
21 MATHEMATICS	41 AERONAUTICAL	61 BIOLOGICAL	99 ALL DISCIPLINE(S)
22 COMPUTER SCIENCES	42 ASTRONAUTICAL	62 SOCIAL ASPECTS	
29 MATHEMATICAL COMPUTER SCIENCES, NEC*	43 CHEMICAL	69 PSYCHOLOGY, NEC*	
	44 CIVIL		
	45 ELECTRICAL		
	46 MECHANICAL		
	47 METALLURGY AND MATERIALS		
	49 ENGINEERING, NEC*		

*Not Elsewhere Classified (For interdisciplinary projects and others not listed by discipline name)

**For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	ALABAMA A&M UNIV	Darbro, W.	MSFC	George, M. C.	NAG 8-36	1005
11	ARIZONA STATE UNIV	Lasher, L. E.	ARC	Williams, D. R.	NAG 2-522	1212
11	ARIZONA STATE UNIV	Nishioka, K.	ARC	Levey, E. H.	NCC 2-348	1254
11	ARIZONA STATE UNIV	Kondo, Y.	GSFC	Cowley, A.	NAG 5-358	1218
11	ARIZONA STATE UNIV	Kondo, Y.	GSFC	Starrfield, S.	NAG 5-481	1219
11	ARIZONA STATE UNIV	Kondo, Y.	GSFC	Burstein, D.	NAG 5-547	1220
11	ARIZONA STATE UNIV	Kondo, Y.	GSFC	Cowley, A. P.	NAG 5-996	1221
11	ARIZONA STATE UNIV	Kondo, Y.	GSFC	Stryker, L.	NAG 5-1006	1222
11	ARIZONA STATE UNIV	Dorries, A. M.	MSFC	Burstein, D.	NAG 8-505	1223
11	ARIZONA STATE UNIV	Bass, B. G.	MSFC	Cowley, A. P.	NAG 8-559	1224
11	ARIZONA STATE UNIV	Dorries, A. M.	MSFC	Romanishin, W.	NAG 8-576	1225
11	ARIZONA STATE UNIV	Harper, B. A.	MSFC	Burstein, D.	NAG 8-665	1226
11	ARIZONA STATE UNIV	Harper, B. A.	MSFC	Burstein, D.	NAG 8-734	1227
11	ARIZONA STATE UNIV	Brinton, H. C.	HQ-EL	Wyckoff, S.	NAGW 547	1237
11	ARIZONA STATE UNIV	Vescelus, F.	HQ-EL	Christensen, P. R.	NASW 4021	1249
11	BAYLOR UNIVERSITY	Brinton, H. C.	HQ-EL	Alexander, W. M.	NAGW 1308	5095
11	BAYLOR UNIVERSITY	Brunk, W. E.	HQ-EL	Alexander, W. M.	NASW 3577	5096
11	BELOIT COLLEGE	Taylor, W. E.	MSFC	Schroeder, D. J.	NAS 8-32901	5827
11	BOSTON UNIVERSITY	Haas, M. R.	ARC	Lane, A. P.	NCA 2-321	3433
11	BOSTON UNIVERSITY	Wales, R. O.	GSFC	Hughes, W.	NAG 5-564	3422
11	BOSTON UNIVERSITY	Kondo, Y.	GSFC	Janes, K.	NAG 5-807	3424
11	BOSTON UNIVERSITY	Potter, P. Y.	MSFC	Brecher, K.	NAG 8-467	3427
11	BOSTON UNIVERSITY	Harper, B.	MSFC	Marscher, A. P.	NAG 8-671	3428
11	BOSTON UNIVERSITY	Owens, F. C.	HQ-XE	Marcher, A. P.	NGT 00-050-314	3436
11	BOWLING GRN STATE U	Kondo, Y.	GSFC	Stoner, R. E.	NAG 5-331	4478
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Phillips, T. G.	NAG 2-1	1453
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Mundy, L.	NAG 2-476	1454
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Scoville, N. Z.	NAG 2-534	1455
11	CALIF INST OF TECH	Werner, M. W.	ARC	Neugebauer, G.	NCA 2-90401	1506
11	CALIF INST OF TECH	Konds, Y.	GSFC	Moore, R. L.	NAG 5-337	1457
11	CALIF INST OF TECH	Wales, R.	GSFC	Stone, E. C.	NAG 5-722	1459
11	CALIF INST OF TECH	Wales, R. O.	GSFC	Stone, E. C.	NAG 5-727	1460

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	CALIF INST OF TECH	Kondo, Y.	GSFC	Cohen, J. G.	NAG 5-958	1467
11	CALIF INST OF TECH	Crannell, C. J.	GSFC	Hurford, G. J.	NAG 5-998	1468
11	CALIF INST OF TECH	Stich, K.	GSFC	Westphal, J.	NAS 5-25451	1500
11	CALIF INST OF TECH	Mercanti, E.	GSFC	Stone, E. C.	NAS 5-30340	1503
11	CALIF INST OF TECH	Harper, B.	MSFC	Stone, E. C.	NAG 8-502	1469
11	CALIF INST OF TECH	Harper, B. A.	MSFC	Mewaldt, R. A.	NAG 8-678	1472
11	CALIF INST OF TECH	Hagyard, M. J.	MSFC	Zirin, H.	NAG 8-707	1473
11	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Yung, Y. L.	NAGW 1204	1489
11	CALIF INST OF TECH	Rahe, J. H.	HQ-EL	Muhleman, D. O.	NAGW 1448	1499
11	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Muhleman, D. O.	NGL 05-002-003	1511
11	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Soifer, B. T.	NGL 05-002-140	1515
11	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Muhleman, D. O.	NGR 05-002-114	1516
11	CALIF INST OF TECH	Mellott, M. M.	HQ-ES	Goldreich, P.	NAGW 1303	1494
11	CALIF INST OF TECH	Mellott, M. M.	HQ-ES	Stone, E. C.	NGR 05-002-160	1517
11	CALIF INST OF TECH	Gillett, F. C.	HQ-EZ	Phillips, T. G.	NAGW 107	1482
11	CALIF INST OF TECH	Jones, W. V.	HQ-EZ	Blandford, R.	NAGW 941	1488
11	CALIF INST OF TECH	Spicer, D. S.	HQ-EZ	Zirin, H.	NGL 05-002-034	1512
11	CALIF INST OF TECH	Weiler, E. J.	HQ-EZ	Oke, J. B.	NGL 05-002-134	1514
11	CASE WESTERN RESERVE	Kaluziński, L. J.	HQ-EZ	Frye Jr., G. M.	NAGW 451	4533
11	CATHOLIC UNIVERSITY	Kondo, Y.	GSFC	Bruhweiler, F. C.	NAG 5-296	2499
11	CATHOLIC UNIVERSITY	Hallam, K. L.	GSFC	Bruhweiler, F. C.	NAG 5-596	2502
11	CATHOLIC UNIVERSITY	Ness, N. F.	GSFC	Whang, Y. C.	NAG 5-792	2505
11	CATHOLIC UNIVERSITY	Trombka, J. I.	GSFC	Wernitz, C.	NSG 5066	2516
11	CITADEL MLTRY CO S C	Kondo, Y.	GSFC	Adelman, S. J.	NAG 5-793	5005
11	CITADEL MLTRY CO S C	Leckrone, D. S.	GSFC	Adelman, S. J.	NAG 5-921	5006
11	CITY COLLEGE OF N Y	Cassen, P.	ARC	Yuan, C.	NCA 2-186	4115
11	COLUMBIA UNIVERSITY	Kondo, Y.	GSFC	Halpern, J. P.	NAG 5-823	4145
11	COLUMBIA UNIVERSITY	Kondo, Y.	GSFC	Patterson, J. O.	NAG 5-827	4146
11	COLUMBIA UNIVERSITY	Kondo, Y.	GSFC	Martin, C.	NAG 5-967	4149
11	COLUMBIA UNIVERSITY	Kondo, Y.	GSFC	Tytler, D.	NAG 5-991	4150
11	COLUMBIA UNIVERSITY	Carlson, B.	GSFC	Ruderman, M. A.	NCC 5-37	4178
11	COLUMBIA UNIVERSITY	Green, S.	GSFC	Flynn, G.	NCC 5-38	4179
11	COLUMBIA UNIVERSITY	Harper, B. A.	MSFC	Novick, R.	NAG 8-497	4152
11	COLUMBIA UNIVERSITY	Dorries, A. M.	MSFC	Halpern, J. P.	NAG 8-570	4153
11	COLUMBIA UNIVERSITY	Harper, B. A.	MSFC	Patterson, J.	NAG 8-661	4154
11	COLUMBIA UNIVERSITY	Harper, B.	MSFC	Helfand, D. J.	NAG 8-664	4155
11	COLUMBIA UNIVERSITY	Harper, B.	MSFC	Patterson, J.	NAG 8-728	4156
11	COLUMBIA UNIVERSITY	Harper, B.	MSFC	Patterson, J.	NAG 8-729	4157
11	COLUMBIA UNIVERSITY	Harper, B.	MSFC	Halpern, J.	NAG 8-740	4158
11	COLUMBIA UNIVERSITY	Kaluziński, L. J.	HQ-EZ	Shaham, J.	NAGW 567	4160
11	COLUMBIA UNIVERSITY	Kaluziński, L. J.	HQ-EZ	Aprile, E.	NAGW 1370	4167
11	COLUMBIA UNIVERSITY	Bogges, N. W.	HQ-EZ	Flynn, G.	NSG 7105	4184
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Herter, T.	NAG 2-207	4185
11	CORNELL UNIVERSITY	Ramos, R.	ARC	Houck, J. R.	NAG 2-317	4186
11	CORNELL UNIVERSITY	Lasher, L. E.	ARC	Turcotte, D. L.	NAG 2-524	4189
11	CORNELL UNIVERSITY	Leidich, C.	ARC	Houck, J.	NAS 2-12524	4229
11	CORNELL UNIVERSITY	Johnson, W. G.	MSFC	Haynes, M. P.	NAG 8-556	4200
11	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Burns, J. A.	NAGW 1187	4218
11	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Dermott, S. F.	NAGW 1202	4222
11	CORNELL UNIVERSITY	Fox, K.	HQ-EL	Thompson, W. R.	NAGW 1444	4227
11	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Darmott, S. F.	NAGW 1447	4228
11	CORNELL UNIVERSITY	Kaluziński, L. J.	HQ-EZ	Salpeter, E. E.	NAGW 666	4207
11	CORNELL UNIVERSITY	Gillett, F. C.	HQ-EZ	Bauer, S. H.	NAGW 1262	4224
11	CORNELL UNIVERSITY	Nagy, T.	HQ-EZ	Salpeter, E. E.	NGT 00-050-280	4246
11	CORNELL UNIVERSITY	County, J.	HQ-XE	Sagar, C.	NGT 00-050-302	4248
11	CORNELL UNIVERSITY	Owens, F. C.	HQ-LE	Nicholson, P. D.	NGT 33-010-804	4254
11	CORNELL UNIVERSITY	Owens, F. C.	HQ-LE	Burns, J. A.	NGT 33-010-805	4255
11	DARTMOUTH COLLEGE	Kondo, Y.	GSFC	Wegner, G. A.	NAG 5-287	3972
11	DARTMOUTH COLLEGE	Kondo, Y.	GSFC	Wegner, G. A.	NAG 5-971	3974
11	DARTMOUTH COLLEGE	Kondo, Y.	GSFC	Hudson, M. K.	NAG 5-1077	3975

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	DUKE UNIVERSITY	Bogges, N. W.	HQ-EZ	Herbst, E.	NAGW 189	4403
11	DUKE UNIVERSITY	Gillett, F. C.	HQ-EZ	Herbst, E.	NAGW 1259	4404
11	FLORIDA ATLANTIC U	Mac dowell, L. G.	KSC	Hartt, W. H.	NAG10-30	2591
11	FLORIDA STATE UNIV	Owens, F. C.	HQ-LE	Barcilon, A.	NGT 00-050-058	2611
11	GEORGE MASON UNIV	Kondo, Y.	GSFC	Kafatos, M.	NAG 5-724	5503
11	GEORGE MASON UNIV	Kaluziński, L.	HQ-EZ	Kafatos, M.	NAGW 1229	5504
11	GEORGIA STATE UNIV	Kondo, Y.	GSFC	Miller, H. R.	NAG 5-808	2752
11	HARVARD UNIVERSITY	Kondo, Y.	GSFC	Kirshner, R. P.	NAG 5-841	3452
11	HARVARD UNIVERSITY	Harper, B.	MSFC	Djorgorski, S.	NAG 8-578	3454
11	HARVARD UNIVERSITY	Harper, B. A.	MSFC	Kirshner, R. P.	NAG 8-603	3455
11	HARVARD UNIVERSITY	Harper, B. A.	MSFC	Grindlay, J. E.	NAG 8-655	3456
11	HARVARD UNIVERSITY	Alexander, J. K.	HQ-E	Shapiro, I. I.	NSG 7176	3481
11	HARVARD UNIVERSITY	Butler, D. M.	HQ-EE	Rosner, R.	NAGW 79	3459
11	HARVARD UNIVERSITY	Kaluziński, L. J.	HQ-EZ	Grindlay, J.	NAGW 624	3462
11	HARVARD UNIVERSITY	Stachnik, R. V.	HQ-EZ	Papaliolios, C.	NAGW 1337	3465
11	HARVARD UNIVERSITY	Kaluziński, L. J.	HQ-EZ	Cameron, A. G.	NGR 22-007-272	3474
11	HARVARD UNIVERSITY	Stachnik, R. V.	HQ-EZ	Parkinson, W. H.	NSG 7304	3482
11	HARVARD UNIVERSITY	Owens, F. C.	HQ-XE	Rosner, R.	NGT 00-050-020	3475
11	HARVARD UNIVERSITY	Owens, F. C.	HQ-XE	Moran, J. M.	NGT 00-050-240	3477
11	HARVARD UNIVERSITY	Owens, F. C.	HQ-XE	Fazio, G. G.	NGT 00-050-352	3480
11	HOWARD UNIVERSITY	Davila, J. M.	GSFC	Kumar, C. K.	NAG 5-772	2560
11	INDIANA U-BLOOMINGTN	Cuzzi, J. N.	ARC	Durisen, R. H.	NAG 2-512	2976
11	INDIANA U-BLOOMINGTN	Kondo, Y.	GSFC	Johnson, H. R.	NAG 5-182	2977
11	INDIANA U-BLOOMINGTN	Kondo, Y.	GSFC	Mufson, S. L.	NAG 5-198	2978
11	INDIANA U-BLOOMINGTN	Kondo, Y.	GSFC	Eaton, J.	NAG 5-599	2979
11	INDIANA U-BLOOMINGTN	Kondo, Y.	GSFC	Lugger, P.	NAG 5-962	2981
11	INDIANA U-BLOOMINGTN	Potter, P.	MSFC	Cohn, H. N.	NAG 8-589	2982
11	IOWA STATE UNIV	Kondo, Y.	GSFC	Willson, L. A.	NAG 5-707	3066
11	IOWA STATE UNIV	Gillett, F. C.	HQ-EZ	Struck Marcell H, C.	NAGW 1009	3069
11	JOHNS HOPKINS UNIV	Haughney, L. C.	ARC	Weaver, H. A., Jr.	NAG 2-356	3230
11	JOHNS HOPKINS UNIV	Brien, J. J.	GSFC	Moos, W.	NAG 5-327	3233
11	JOHNS HOPKINS UNIV	Kondo, Y.	GSFC	Blair, W. P.	NAG 5-988	3241
11	JOHNS HOPKINS UNIV	O'brien, J.	GSFC	Moos, W.	NAS 5-30339	3260
11	JOHNS HOPKINS UNIV	Kondo, Y.	GSFC	Moos, H. W.	NSG 5393	3271
11	JOHNS HOPKINS UNIV	Harper, B. A.	MSFC	Kriss, G. A.	NAG 8-676	3242
11	JOHNS HOPKINS UNIV	Harper, B. A.	MSFC	Long, K. S.	NAG 8-677	3243
11	JOHNS HOPKINS UNIV	Owens, J. H.	MSFC	Davidsen, A.	NAS 5-27000	3258
11	JOHNS HOPKINS UNIV	Taylor, W. E.	MSFC	Fastie, W. G.	NAS 8-32903	3262
11	JOHNS HOPKINS UNIV	Alexander, J. K.	HQ-E	Krimigas, S. M.	NAGW 865	3252
11	JOHNS HOPKINS UNIV	Peterson, L. E.	HQ-EZ	Davidsen, A. F.	NAGW 1098	3254
11	JOHNS HOPKINS UNIV	Stencel, R. E.	HQ-EZ	Kargon, R. H.	NASW 3691	3263
11	LEHIGH UNIVERSITY	Chackerian, C.	ARC	Lovejoy, R.	NCA 2-293	4860
11	LEHIGH UNIVERSITY	Kondo, Y.	GSFC	McCluskey, G. E.	NSG 5386	4861
11	LA ST U&A&M COL-BRGE	Cuzzi, J. N.	ARC	Wefel, J. P.	NAG 2-528	3177
11	LA ST U&A&M COL-BRGE	Kondo, Y.	GSFC	Drilling, J. S.	NAG 5-71	3179
11	LA ST U&A&M COL-BRGE	Kondo, Y.	GSFC	Koester, D.	NAG 5-990	3181
11	LA ST U&A&M COL-BRGE	Cline, T. L.	HQ-EZ	Wefel, J. P.	NAGW 550	3184
11	MASS INST OF TECH	Haughney, L. C.	ARC	Elliott, J. L.	NAG 2-475	3501
11	MASS INST OF TECH	Kondo, Y.	GSFC	Urry, C. M.	NAG 5-495	3523
11	MASS INST OF TECH	Wales, R. O.	GSFC	Lazarus, A. J.	NAG 5-584	3527
11	MASS INST OF TECH	Early, L. J.	GSFC	Kirshner, R. P.	NAG 5-645	3528
11	MASS INST OF TECH	Kondo, Y.	GSFC	Remillard, R. A.	NAG 5-977	3538
11	MASS INST OF TECH	Ogilvie, K.	GSFC	Lazarus, A.	NAS 5-29325	3597
11	MASS INST OF TECH	Hartman, R. C.	GSFC	Nixon, G.	NAS 5-30426	3598
11	MASS INST OF TECH	Harper, B.	MSFC	Bradt, H.	NAG 8-493	3543
11	MASS INST OF TECH	Harper, B.	MSFC	Clark, G. W.	NAG 8-494	3544
11	MASS INST OF TECH	Harper, B.	MSFC	Lewin, W. H.	NAG 8-495	3545
11	MASS INST OF TECH	Johnson, W. G.	MSFC	Markert, T. H.	NAG 8-517	3546
11	MASS INST OF TECH	Harper, B.	MSFC	Lewin, W. G.	NAG 8-571	3547
11	MASS INST OF TECH	Potter, P. Y.	MSFC	Bradt, H.	NAG 8-610	3548

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	MASS INST OF TECH	Harper, B.	MSFC	Bradt, H. V.	NAG 8-673	3549
11	MASS INST OF TECH	Harper, B.	MSFC	Lewin, W. H.	NAG 8-674	3550
11	MASS INST OF TECH	Harper, B.	MSFC	Bradt, H.	NAG 8-691	3551
11	MASS INST OF TECH	Harper, B.	MSFC	Lewin, W. H.	NAG 8-700	3552
11	MASS INST OF TECH	Harper, B.	MSFC	Clark, G. C.	NAG 8-701	3553
11	MASS INST OF TECH	Winkler, C. E.	MSFC	Canizares, C. R.	NAS 8-36748	3601
11	MASS INST OF TECH	Brinton, H. C.	HQ-EL	Taff, L. G.	NAGW 232	3564
11	MASS INST OF TECH	Brinton, H. C.	HQ-EL	Jewitt, D. C.	NAGW 770	3572
11	MASS INST OF TECH	Scott, D. H.	HQ-EL	Solomon, S. C.	NAGW 1077	3577
11	MASS INST OF TECH	Rahe, J. H.	HQ-EL	Burke, B. I.	NAGW 1386	3587
11	MASS INST OF TECH	Rahe, J. H.	HQ-EL	Binzel, R.	NAGW 1450	3588
11	MASS INST OF TECH	Brinton, H. C.	HQ-EL	Elliot, J. L.	NSG 7526	3641
11	MASS INST OF TECH	Kaluzienski, L. J.	HQ-EZ	Clark, G. W.	NAGW 442	3565
11	MASS INST OF TECH	Gillett, F. C.	HQ-EZ	Cheng, E. S.	NAGW 1139	3580
11	MASS INST OF TECH	Boggess, N. W.	HQ-EZ	Meyer, S.	NGR 22-009-526	3615
11	MASS INST OF TECH	Kaluzienski, L. J.	HQ-EZ	Ricker, G. R.	NSG 7339	3640
11	MASS INST OF TECH	Kaluzienski, L. J.	HQ-EZ	Clark, G. W.	NSG 7643	3643
11	MASS INST OF TECH	Owens, F. C.	HQ-LE	Pettengill, G. H.	NGT 22-009-904	3633
11	MICHIGAN STATE UNIV	Kondo, Y.	GSFC	Linnell, A. P.	NAG 5-802	3697
11	MIDDLEBURY COLLEGE	Kondo, Y.	GSFC	Winkler, P. F.	NAG 5-801	5468
11	MIDDLEBURY COLLEGE	Johnson, W. G.	MSFC	Winkler, P. F., Jr.	NAG 8-389	5469
11	MIDDLEBURY COLLEGE	Harper, B. A.	MSFC	Winkler, P. F.	NAG 8-735	5470
11	MONTANA STATE UNIV	Harper, B. A.	MSFC	Tsuruta, S.	NAG 8-736	3927
11	MORGAN STATE UNIV	Baker, G. R.	GSFC	Hammond, E. C., Jr.	NSG 5074	3280
11	NEW MEX INST MINING	Caroft, L. J.	ARC	Eilek, J. A.	NCC 2-364	4072
11	NEW MEX INST MINING	Kondo, Y.	GSFC	Shore, S. N.	NAG 5-767	4068
11	NEW MEX INST MINING	Niedier, M.	GSFC	Moore, E.	NCA 5-71	4071
11	NEW MEX ST U-LAS CR	Brinton, H. C.	HQ-EL	Beebe, R. F.	NGL 32-003-001	4092
11	NEW MEX ST U-LAS CR	Mellott, M. M.	HQ-ES	Golden, R. L.	NAGW 110	4077
11	NEW YORK UNIVERSITY	Kondo, Y.	GSFC	Glassgold, A. E.	NAG 5-73	4272
11	NEW YORK UNIVERSITY	Butler, D. M.	HQ-EE	Strauss, H.	NAGW 781	4277
11	NEW YORK UNIVERSITY	Gillett, F. C.	HQ-EZ	Glassgold, A. E.	NAGW 630	4276
11	NO CAROLINA STATE U	Harper, B. A.	MSFC	Reynolds, S. P.	NAG 8-731	4444
11	NORTHERN ARIZONA U	Fimmel, R. O.	ARC	Morgan, P.	NAG 2-465	1262
11	NORTHWESTERN UNIV	Werner, M. W.	ARC	Bushouse, H. A.	NCA 2-345	2838
11	NORTHWESTERN UNIV	Early, L. J.	GSFC	Ulmer, M. P.	NAG 5-181	2831
11	NORTHWESTERN UNIV	Potter, P. Y.	MSFC	Ulmer, M. P.	NAG 8-604	2835
11	NORTHWESTERN UNIV	Harper, B. A.	MSFC	Ulmer, M. P.	NAG 8-681	2836
11	OHIO STATE UNIV	Kondo, Y.	GSFC	Peterson, B. M.	NAG 5-826	4650
11	OHIO STATE UNIV	Kondo, Y.	GSFC	Ferland, G. J.	NAG 5-1027	4651
11	PENN STATE U-UNIV PK	Pollack, J. B.	ARC	Ackerman, T. P.	NCA 2-335	4918
11	PENN STATE U-UNIV PK	Early, L. J.	GSFC	Garmie, G. P.	NAG 5-100	4879
11	PENN STATE U-UNIV PK	KlingleSmith, D. A.	GSFC	Usher, P. D.	NAG 5-361	4881
11	PENN STATE U-UNIV PK	Kondo, Y.	GSFC	Ramsey, L. W.	NAG 5-563	4882
11	PENN STATE U-UNIV PK	Kondo, Y.	GSFC	Weedman, D.	NAG 5-590	4883
11	PENN STATE U-UNIV PK	Kondo, Y.	GSFC	Huenemoerder, D. P.	NAG 5-810	4888
11	PENN STATE U-UNIV PK	Dorries, A. M.	MSFC	Nousek, J. A.	NAG 8-561	4893
11	PENN STATE U-UNIV PK	Potter, P. V.	MSFC	Burrows, D.	NAG 8-601	4894
11	PENN STATE U-UNIV PK	Potter, P. Y.	MSFC	Feigelson, E. D.	NAG 8-607	4895
11	PENN STATE U-UNIV PK	Harper, B.	MSFC	Meszaros, P. I.	NAG 8-672	4896
11	PENN STATE U-UNIV PK	Cummings, N. P.	MSFC	Garmire, G. P.	NAS 8-36749	4909
11	PENN STATE U-UNIV PK	Owens, F. C.	HQ-XE	Garmire, G. P.	NGT 00-050-309	4928
11	PRINCETON UNIVERSITY	Haughney, L. C.	ARC	Knapp, G. R.	NAG 2-497	4022
11	PRINCETON UNIVERSITY	Kondo, Y.	GSFC	Jenkins, E. B.	NAG 5-1004	4031
11	PRINCETON UNIVERSITY	Kondo, Y.	GSFC	Fitzpatrick, E. L.	NAG 5-1014	4032
11	PRINCETON UNIVERSITY	Mather, J.	GSFC	Wilkenson, D. T.	NAS 5-27590	4044
11	PRINCETON UNIVERSITY	Locke, M.	GSFC	Groth, E. J.	NAS 5-29142	4045
11	PRINCETON UNIVERSITY	Vitagliano, D.	GSFC	Jenkins, E.	NAS 5-30110	4046
11	PRINCETON UNIVERSITY	Kondo, Y.	GSFC	Jenkins, E. B.	NSG 5248	4055
11	PRINCETON UNIVERSITY	Mellott, M. M.	HQ-ES	Ostriker, J. P.	NAGW 765	4039

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	PRINCETON UNIVERSITY	Boggess, N. W.	HQ-EZ	Wilkinson, D.	NAGW 445	4037
11	PRINCETON UNIVERSITY	Stencel, R. E.	HQ-EZ	Rogerson, J. B., Jr.	NAGW 477	4038
11	PRINCETON UNIVERSITY	Gillett, F. C.	HQ-EZ	Draine, B. T.	NGL 31-001-007	4049
11	PRINCETON UNIVERSITY	Boggess, N. W.	HQ-EZ	Wilkinson, D. T.	NSG 7302	4056
11	PRINCETON UNIVERSITY	Weiler, E. J.	HQ-EZ	Jenkins, E. B.	NSG 7618	4057
11	RENSELAER POLY-NY	Fox, K.	HQ-EL	Ferris, J. P.	NAGW 476	4298
11	RENSELAER POLY-NY	Quaide, W. L.	HQ-EL	Gaffey, M. J.	NAGW 1372	4302
11	RENSELAER POLY-NY	Weiler, E. J.	HQ-EZ	Leung, C.	NAGW 1103	4300
11	RICE UNIVERSITY	Kondo, Y.	GSFC	Dufour, R. J.	NAG 5-262	5112
11	RICE UNIVERSITY	Browne, I. D.	JSC	Clayton, D. D.	NAG 9-100	5116
11	RICE UNIVERSITY	Potter, A.	JSC	Killen, R. M.	NAG 9-305	5122
11	RICE UNIVERSITY	Robinson, M. B.	MSFC	Margrave, J. L.	NAG 8-612	5114
11	RICE UNIVERSITY	Rosendhal, J. D.	HQ-E	Michel, F. C.	NAGW 379	5123
11	RUTGERS ST U-N BRNSK	Browne, I. D.	JSC	Herzog, G. F.	NAG 9-26	4058
11	SAN DIEGO STATE UNIV	Gillett, F. C.	HQ-EZ	Lee, L.	NAGW 319	1573
11	SAN FRAN STATE UNIV	Valero, F. P.	ARC	Lea, S. M.	NCA 2-97	1579
11	SAN FRAN STATE UNIV	Valero, F. P.	ARC	Marcy, G. W.	NCA 2-261	1582
11	SAN JOSE STATE UNIV	Haberle, R. M.	ARC	Bridger, A.	NCA 2-176	1593
11	SONOMA STATE UNIV	Harper, B.	MSFC	Cominsky, L. R.	NAG 8-649	1618
11	GEORGIA INST OF TECH	Lasher, L. E.	ARC	Steffes, P. G.	NAG 2-515	2710
11	STANFORD UNIVERSITY	Lasher, L. E.	ARC	Carpenter, D. L.	NAG 2-520	1637
11	STANFORD UNIVERSITY	Erickson, E.	ARC	Petrosian, V.	NCA 2-14	1676
11	STANFORD UNIVERSITY	Scargle, J. D.	ARC	Timothy, J. G.	NCA 2-93	1683
11	STANFORD UNIVERSITY	Kasting, J. F.	ARC	Sleep, N.	NCA 2-263	1705
11	STANFORD UNIVERSITY	Cuzzi, J. N.	ARC	Tyler, G. L.	NCA 2-283	1709
11	STANFORD UNIVERSITY	Barnes, A.	ARC	Owen Storey, L. R.	NCA 2-286	1711
11	STANFORD UNIVERSITY	Hartman, R. C.	GSFC	Hofstadter, R.	NAS 5-27557	1666
11	STANFORD UNIVERSITY	Quaide, W. L.	HQ-EL	Eshelman, V. R.	NAGW 1180	1662
11	STANFORD UNIVERSITY	Quaide, W. L.	HQ-EL	Tyler, G. L.	NAGW 1210	1663
11	STANFORD UNIVERSITY	Evans, L. G.	HQ-EL	Tyler, G. L.	NASW 3981	1673
11	STANFORD UNIVERSITY	Stachnik, R. V.	HQ-EZ	Wagoner, R. V.	NAGW 299	1654
11	STANFORD UNIVERSITY	Ahluwalia, H. S.	HQ-EZ	Scherrer, P. H.	NGR 05-020-559	1768
11	STANFORD UNIVERSITY	Kaluzienski, L. J.	HQ-EZ	Sturrock, P. A.	NGR 05-020-668	1770
11	STANFORD UNIVERSITY	Ahluwalia, H. S.	HQ-EZ	Petrosian, V.	NSG 7092	1788
11	STATE UNIV NY-ALBANY	Haughney, L. C.	ARC	Knacke, R.	NAG 2-495	4313
11	STATE UNIV NY-ALBANY	Lasher, L. E.	ARC	Fox, J. L.	NAG 2-523	4314
11	STATE U NY-BINGHAMTN	Owens, F. C.	HQ-LE	Goel, N. S.	NGT 33-188-805	4337
11	STATE U NY-STONY BRK	Kondo, Y.	GSFC	Wagener, R.	NAG 5-1083	4356
11	STATE U NY-STONY BRK	Taylor, W. E.	MSFC	Caldwell, J. J.	NAS 8-32904	4365
11	STATE U NY-STONY BRK	Brinton, H. C.	HQ-EL	Owen, T. C.	NGR 33-015-141	4369
11	STATE U NY-STONY BRK	Brinton, H. C.	HQ-EL	Knacke, R. F.	NSG 7286	4373
11	STATE U NY-STONY BRK	Owens, F. C.	HQ-LE	Knacke, R.	NGT 33-015-803	4370
11	TENNESSEE STATE UNIV	Randall, J. L.	MSFC	Busby, M. R.	NAG 8-111	5047
11	TUFTS UNIVERSITY	Kondo, Y.	GSFC	Lang, K. R.	NAG 5-477	3650
11	UNIV ALA-HUNTSVILLE	Davis, J. M.	MSFC	Emslie, A. G.	NAG 8-52	1083
11	UNIV ALA-HUNTSVILLE	Waite, J. H.	MSFC	Cornfort, R. H.	NAG 8-82	1094
11	UNIV ALA-HUNTSVILLE	Fishman, G. J.	MSFC	Paciesas, W. S.	NAS 8-36362	1150
11	UNIV ALASKA-FAIRBNKS	Trofford, G. H.	GSFC	Miller, J.	NCA 5-112	1207
11	UNIV OF ARIZONA	Scargle, J. D.	ARC	McMillan, R. S.	NAG 2-52	1267
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Larson, H. P.	NAG 2-206	1269
11	UNIV OF ARIZONA	Ramos, R.	ARC	Low, F. J.	NAG 2-319	1270
11	UNIV OF ARIZONA	Ramos, R.	ARC	Rieke, G.	NAG 2-320	1271
11	UNIV OF ARIZONA	Goorvitch, D.	ARC	Low, F. J.	NAG 2-447	1276
11	UNIV OF ARIZONA	Lasher, L. E.	ARC	Bougher, S. W.	NAG 2-519	1277
11	UNIV OF ARIZONA	Cuzzi, J. N.	ARC	Larson, S. M.	NAG 2-527	1278
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Rieke, M.	NAS 2-12498	1375
11	UNIV OF ARIZONA	Ramos, R.	ARC	Rieke, G.	NAS 2-12578	1376
11	UNIV OF ARIZONA	Nishioka, K.	ARC	Levy, E. H.	NCC 2-439	1394
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Green, R.	NAG 5-38	1286
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Holbert, J. B.	NAG 5-434	1288

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Polidan, R. S.	NAG 5-441	1289
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Shemansky, D.	NAG 5-560	1291
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Wade, R. A.	NAG 5-703	1294
11	UNIV OF ARIZONA	Trombka, J. I.	GSFC	Boynton, W. V.	NAG 5-790	1295
11	UNIV OF ARIZONA	Clarke, J. T.	GSFC	Sandel, B. R.	NAG 5-928	1300
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Berriman, G.	NAG 5-953	1301
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Liebert, J. W.	NAG 5-965	1302
11	UNIV OF ARIZONA	Bracalente, E. M.	LARC	Raemer, H. R.	NAG 8-583	1304
11	UNIV OF ARIZONA	Harper, B. A.	MSFC	Liebert, J.	NAG 8-666	1306
11	UNIV OF ARIZONA	Harper, B. A.	MSFC	Rieke, G. H.	NAG 8-667	1307
11	UNIV OF ARIZONA	Snyder, R. S.	MSFC	Sammons, D. W.	NAG 8-716	1309
11	UNIV OF ARIZONA	Rosendhal, J. D.	HQ-E	Angel, J. R.	NAGW 121	1316
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Larson, S. M.	NAGW 247	1317
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Hunter, D. M.	NAGW 596	1325
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Drummond, J. D.	NAGW 867	1334
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Gehrels, T.	NAGW 887	1335
11	UNIV OF ARIZONA	Rahe, J. H.	HQ-EL	Greenberg, R. J.	NAGW 1132	1350
11	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Holberg, J. B.	NAGW 1184	1355
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	McMillan, R. S.	NAGW 1283	1363
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Gehrels, T.	NAGW 1300	1365
11	UNIV OF ARIZONA	Rahe, J. H.	HQ-EL	Singer, R. B.	NAGW 1408	1372
11	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Lebofsky, L. A.	NAGW 1443	1374
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Hsieh, K. C.	NASW 3627	1385
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Smith, B. A.	NGL 03-002-002	1396
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Taylor, R. C.	NGL 03-002-081	1397
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Hubbard, W. B.	NSG 7045	1430
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Fink, U. W.	NSG 7070	1431
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Lebofsky, L. A.	NSG 7114	1433
11	UNIV OF ARIZONA	Mellott, M. M.	HQ-ES	White, S. D.	NAGW 763	1332
11	UNIV OF ARIZONA	Mellott, M. M.	HQ-ES	Jokipii, J. R.	NSG 7101	1432
11	UNIV OF ARIZONA	Stachnik, R. V.	HQ-EZ	Lebofsky, G. J.	NAGW 520	1322
11	UNIV OF ARIZONA	Stachnik, R. V.	HQ-EZ	Holberg, J.	NAGW 587	1324
11	UNIV OF ARIZONA	Stachnik, R. V.	HQ-EZ	McGraw, J. T.	NAGW 804	1333
11	UNIV OF ARIZONA	Gillett, F. C.	HQ-EZ	Young, E.	NAGW 1285	1364
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-EZ	Low, F. J.	NASW 3703	1386
11	UNIV OF ARIZONA	Caroff, L. J.	HQ-EZ	Low, F. J.	NGR 03-002-269	1398
11	UNIV OF ARIZONA	Stachnik, R. V.	HQ-EZ	Hoffmann, W.	NGR 03-002-371	1399
11	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Lewis, J. S.	NGT 00-050-186	1408
11	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Martin, R. N.	NGT 00-050-319	1418
11	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Green, R.	NGT 00-050-331	1419
11	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Lewis, J. S.	NGT 03-002-803	1422
11	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Smith, B. A.	NGT 03-002-804	1423
11	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Lebofsky, M. J.	NGT 03-002-805	1424
11	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Rieke, G.	NGT 03-002-807	1426
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	Townes, C. H.	NAG 2-208	1791
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	Betz, A. L.	NAG 2-254	1793
11	UNIV CALIF-BERKELEY	Lasher, L. E.	ARC	Anderson, K.	NAG 2-393	1797
11	UNIV CALIF-BERKELEY	Cassen, P.	ARC	Shu, F. H.	NCA 2-64	1853
11	UNIV CALIF-BERKELEY	Hollenbach, D.	ARC	McKee, C.	NCA 2-67	1854
11	UNIV CALIF-BERKELEY	Hollenbach, D.	ARC	McKee, C.	NCA 2-126	1857
11	UNIV CALIF-BERKELEY	Werner, M.	ARC	Spinrad, H.	NCA 2-227	1862
11	UNIV CALIF-BERKELEY	Allamandola, L. J.	ARC	McKee, C.	NCA 2-270	1866
11	UNIV CALIF-BERKELEY	Hollenbach, D.	ARC	McKee, C.	NCA 2-277	1868
11	UNIV CALIF-BERKELEY	Werner, M. W.	ARC	Cohen, M.	NCA 2-279	1869
11	UNIV CALIF-BERKELEY	Valero, F. P.	ARC	Davis, S. P.	NCA 2-334	1872
11	UNIV CALIF-BERKELEY	Wittenborn, F. C.	ARC	Heiles, C. E.	NCC 2-142	1876
11	UNIV CALIF-BERKELEY	Hollenbach, D. J.	ARC	Shu, F. H.	NCC 2-548	1879
11	UNIV CALIF-BERKELEY	Kondo, Y.	GSFC	Bowyer, C. S.	NAG 5-69	1807
11	UNIV CALIF-BERKELEY	Kondo, Y.	GSFC	Basri, G. S.	NAG 5-576	1811
11	UNIV CALIF-BERKELEY	Woodgate, B. E.	GSFC	Lampton, M. L.	NAG 5-1007	1815

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV CALIF-BERKELEY	Kondo, Y.	GSFC	Basri, G.	NAG 5-1062	1816
11	UNIV CALIF-BERKELEY	Mather, J. C.	GSFC	Smoot, G. F.	NAS 5-27592	1842
11	UNIV CALIF-BERKELEY	Kalinowski, J. K.	GSFC	King, I.	NAS 5-28086	1843
11	UNIV CALIF-BERKELEY	Schultz, D.	GSFC	Malina, R.	NAS 5-29298	1844
11	UNIV CALIF-BERKELEY	Trombka, J. I.	GSFC	Lin, R. P.	NAS 5-29318	1845
11	UNIV CALIF-BERKELEY	Smith, A.	GSFC	Hunten, D.	NAS 5-30180	1846
11	UNIV CALIF-BERKELEY	Early, L. J.	GSFC	Bowyer, C. S.	NGR 05-003-450	1884
11	UNIV CALIF-BERKELEY	O'neal, R. L.	LARC	Price, P. B.	NAS 1-17806	1838
11	UNIV CALIF-BERKELEY	Dessler, A. J.	MSFC	Lampton, M. L.	NAG 8-73	1818
11	UNIV CALIF-BERKELEY	Harper, B. A.	MSFC	McKee, C. F.	NAG 8-679	1819
11	UNIV CALIF-BERKELEY	Harper, B. A.	MSFC	Kahn, S. M.	NAG 8-680	1820
11	UNIV CALIF-BERKELEY	Rummel, J. D.	HQ-EB	Bowyer, C. S.	NAGW 526	1827
11	UNIV CALIF-BERKELEY	Brinton, H. C.	HQ-EL	Spinrad, H.	NAGW 270	1824
11	UNIV CALIF-BERKELEY	Brinton, H. C.	HQ-EL	Lin, R. P.	NAGW 1298	1835
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-EL	Lin, R. P.	NASW 3575	1849
11	UNIV CALIF-BERKELEY	Mellott, M. M.	HQ-ES	Price, P. B.	NGR 05-003-376	1883
11	UNIV CALIF-BERKELEY	Mellott, M. M.	HQ-ES	Crawford, H. J.	NGR 05-003-513	1886
11	UNIV CALIF-BERKELEY	Gillett, F. C.	HQ-EZ	Smoot, G. F.	NAGW 66	1822
11	UNIV CALIF-BERKELEY	Jones, W. V.	HQ-EZ	Price, P. B.	NAGW 868	1831
11	UNIV CALIF-BERKELEY	Gillett, F. C.	HQ-EZ	Lange, A. E.	NAGW 1352	1837
11	UNIV CALIF-BERKELEY	Weiler, E. J.	HQ-EZ	Lampton, M. L.	NASW 4099	1850
11	UNIV CALIF-BERKELEY	Weiler, E. J.	HQ-EZ	Silk, J. I.	NGR 05-003-578	1887
11	UNIV CALIF-BERKELEY	Nagy, T.	HQ-EZ	Townes, C. H.	NGT 00-050-278	1899
11	UNIV CALIF-BERKELEY	Gillett, F. C.	HQ-EZ	Richards, P. L.	NSG 7205	1907
11	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Bowyer, C. S.	NGT 00-050-185	1897
11	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Bowyer, C. S.	NGT 05-003-805	1906
11	UNIV CALIF-DAVIS	Dorries, A. M.	MSFC	Becker, R. H.	NAG 8-558	1922
11	UNIV CALIF-DAVIS	Dorries, A. M.	MSFC	Becker, R. H.	NAG 8-579	1923
11	UNIV CALIF-DAVIS	Brinton, H. C.	HQ-EL	Jackson, W. M.	NAGW 1144	1927
11	UNIV CALIF-IRVINE	Dorries, A. M.	MSFC	Chanan, G. A.	NAG 8-585	1950
11	UNIV CALIF-L ANGELES	Ramos, R.	ARC	Jura, M. A.	NAG 2-313	1971
11	UNIV CALIF-L ANGELES	Ramos, R.	ARC	Wright, E. L.	NAG 2-315	1972
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Scarf, F.	NAG 2-485	1981
11	UNIV CALIF-L ANGELES	Haughney, L. C.	ARC	Morris, M.	NAG 2-496	1982
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Russell, C.	NAG 2-501	1983
11	UNIV CALIF-L ANGELES	Craig, R. A.	ARC	Russell, C. T.	NAS 2-12383	2032
11	UNIV CALIF-L ANGELES	Erickson, E.	ARC	Zuckerman, B.	NCA 2-180	2043
11	UNIV CALIF-L ANGELES	Werner, M.	ARC	Morris, M. R.	NCA 2-217	2044
11	UNIV CALIF-L ANGELES	Young, R. E.	ARC	Schubert, G.	NCA 2-246	2045
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Malkan, M. A.	NAG 5-575	1992
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Aller, L.	NAG 5-1063	1998
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Jura, M.	NAG 5-1085	2000
11	UNIV CALIF-L ANGELES	Vitagliano, H. D.	GSFC	Jura, M. A.	NAS 5-25657	2033
11	UNIV CALIF-L ANGELES	Mather, J. C.	GSFC	Wright, E. L.	NAS 5-27670	2037
11	UNIV CALIF-L ANGELES	Vitagliano, H. D.	GSFC	Jura, M.	NAS 5-29363	2039
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Plavec, M. J.	NSG 5272	2066
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Aller, L. H.	NSG 5358	2067
11	UNIV CALIF-L ANGELES	Scott, D. H.	HQ-EL	Nicol, M. F.	NAGW 104	2010
11	UNIV CALIF-L ANGELES	Stachnik, R. V.	HQ-EZ	Jura, M. A.	NAGW 80	2008
11	UNIV CALIF-L ANGELES	Kaluzienski, L. J.	HQ-EZ	Kennel, C. F.	NSG 7341	2071
11	UNIV CALIF-L ANGELES	Owens, F. C.	HQ-XE	Malkan, M.	NGT 00-070-039	2059
11	UNIV CALIF-RIVERSIDE	Fox, K.	HQ-EL	White, R. S.	NAGW 709	2072
11	UNIV CALIF-RIVERSIDE	Kaluzienski, L. J.	HQ-EZ	White, R. S.	NGR 05-008-022	2073
11	UNIV CALIF-SAN DIEGO	Trombka, J. I.	GSFC	Arnold, J.	NAG 5-530	2084
11	UNIV CALIF-SAN DIEGO	Kondo, Y.	GSFC	Puetter, R. C.	NAG 5-837	2086
11	UNIV CALIF-SAN DIEGO	Shannon, J. L.	GSFC	Harms, R. J.	NAS 5-24463	2135
11	UNIV CALIF-SAN DIEGO	Shannon, J. L.	GSFC	Beaver, E. A.	NAS 5-25054	2136
11	UNIV CALIF-SAN DIEGO	Vitagliano, A. D.	GSFC	Beaver, E. A.	NAS 5-30107	2140
11	UNIV CALIF-SAN DIEGO	Muller, R.	GSFC	Matteson, J. L.	NAS 5-30338	2141
11	UNIV CALIF-SAN DIEGO	Harper, B. A.	MSFC	Gruber, D. F.	NAG 8-499	2095

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV CALIF-SAN DIEGO	Dorries, A. M.	MSFC	Peterson, L. E.	NAG 8-574	2096
11	UNIV CALIF-SAN DIEGO	Dorries, A. M.	MSFC	Rothschild, R. E.	NAG 8-577	2097
11	UNIV CALIF-SAN DIEGO	Potter, P. Y.	MSFC	Owocki, S. P.	NAG 8-613	2098
11	UNIV CALIF-SAN DIEGO	Harper, B.	MSFC	Gruber, D. E.	NAG 8-663	2100
11	UNIV CALIF-SAN DIEGO	Harper, B.	MSFC	Gruben, D. E.	NAG 8-739	2101
11	UNIV CALIF-SAN DIEGO	Dabbs, J. R.	MSFC	Hudson, H. S.	NAG 8-742	2102
11	UNIV CALIF-SAN DIEGO	Schrick, B. J.	MSFC	Matteson, J. L.	NAS 8-36081	2142
11	UNIV CALIF-SAN DIEGO	Fox, K.	HQ-EL	Mendis, D. A.	NGR 05-009-110	2150
11	UNIV CALIF-SAN DIEGO	Stencel, R. E.	HQ-EZ	Townes, C. H.	NAGW 30	2111
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Matteson, J. L.	NAGW 449	2112
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Gruber, D. E.	NAGW 1399	2133
11	UNIV CALIF-SAN DIEGO	Weiler, E. J.	HQ-EZ	Hier, R. G.	NASW 3667	2144
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Gould, R. J.	NGL 05-005-004	2148
11	UNIV CALIF-SAN DIEGO	Stencel, R. E.	HQ-EZ	Burbidge, E. M.	NSG 7377	2162
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Lingenfelter, R. E.	NSG 7541	2163
11	UNIV CALIF-S BARBARA	Cassen, P. M.	ARC	Peale, S.	NCA 2-113	2199
11	UNIV CALIF-S BARBARA	Gillett, F. C.	HQ-EZ	Lubin, P. M.	NAGW 1062	2193
11	UNIV CALIF-S CRUZ	Erickson, E. F.	ARC	Phillips, R. J.	NCA 2-62	2210
11	UNIV CALIF-S CRUZ	Cassen, P. M.	ARC	Lin, D. N.	NCA 2-65	2211
11	UNIV CALIF-S CRUZ	Cassen, P. M.	ARC	Bodenheimer, P.	NCA 2-66	2212
11	UNIV CALIF-S CRUZ	Werner, M. W.	ARC	Bodenheimer, P.	NCA 2-129	2213
11	UNIV CALIF-S CRUZ	Witteborn, F. C.	ARC	Rank, D. M.	NCA 2-152	2214
11	UNIV CALIF-S CRUZ	Cassen, P. M.	ARC	Lin, D. N.	NCA 2-200	2215
11	UNIV CALIF-S CRUZ	Cuzzi, J. N.	ARC	Lin, N. C.	NCA 2-312	2218
11	UNIV CALIF-S CRUZ	Scargle, J. D.	ARC	Lin, D. N.	NCA 2-347	2219
11	UNIV CALIF-S CRUZ	Scargle, J. D.	ARC	Jones, B. F.	NCA 2-348	2220
11	UNIV CALIF-S CRUZ	Erickson, E. F.	ARC	Rank, D. M.	NCA 2-355	2221
11	UNIV CALIF-S CRUZ	Witteborn, F. C.	ARC	Rank, D. M.	NCC 2-485	2223
11	UNIV CALIF-S CRUZ	Hollenbach, D. J.	ARC	Lin, D. N.	NCC 2-544	2225
11	UNIV CALIF-S CRUZ	Gillett, F. C.	HQ-EZ	Lin, D. N.	NAGW 1102	2207
11	UNIV CALIF-S CRUZ	Nagy, T.	HQ-EZ	Lin, D. N.	NGT 00-050-281	2226
11	UNIV OF CHICAGO	Smith, B. F.	ARC	Miller, R. H.	NCC 2-265	2882
11	UNIV OF CHICAGO	Haughney, L. C.	ARC	Harper, D. A., Jr.	NGR 14-001-227	2889
11	UNIV OF CHICAGO	Haughney, L. C.	ARC	Hildebrand, R. H.	NSG 2057	2907
11	UNIV OF CHICAGO	Kondo, Y.	GSFC	Hobbs, L.	NAG 5-255	2845
11	UNIV OF CHICAGO	Kondo, Y.	GSFC	Frisch, P. C.	NAG 5-704	2849
11	UNIV OF CHICAGO	Wales, R. O.	GSFC	Simpson, J. A.	NAG 5-706	2850
11	UNIV OF CHICAGO	Ormes, J. F.	GSFC	Wiedenbeck, M. E.	NAG 5-857	2851
11	UNIV OF CHICAGO	Kondo, Y.	GSFC	York, D. G.	NAG 5-1005	2853
11	UNIV OF CHICAGO	Wales, R. O.	GSFC	Simpson, J. A.	NAS 5-30117	2878
11	UNIV OF CHICAGO	Browne, I. D.	JSC	Clayton, R. N.	NAG 9-51	2857
11	UNIV OF CHICAGO	Harper, B. A.	MSFC	Lamb, D. Q.	NAG 8-732	2855
11	UNIV OF CHICAGO	Butler, D. M.	HQ-EE	Rosner, R.	NAGW 1235	2870
11	UNIV OF CHICAGO	Ahluwalia, H. S.	HQ-ES	Parker, E. N.	NGL 14-001-001	2883
11	UNIV OF CHICAGO	Mellott, M. M.	HQ-ES	Meyer, P.	NGL 14-001-005	2884
11	UNIV OF CHICAGO	Mellott, M. M.	HQ-ES	Simpson, J. A.	NGL 14-001-006	2885
11	UNIV OF CHICAGO	Kaluzienski, L. J.	HQ-EZ	Lamb, D. Q., Jr.	NAGW 830	2865
11	UNIV OF CHICAGO	Jones, W. V.	HQ-EZ	Wiedenbeck, M. E.	NAGW 877	2867
11	UNIV OF CHICAGO	Kaluzienski, L. J.	HQ-EZ	Schramm, D. N.	NAGW 1000	2869
11	UNIV OF CHICAGO	Weiler, E. J.	HQ-EZ	Hobbs, L. M.	NGR 14-001-147	2888
11	UNIV OF CHICAGO	Owens, F. C.	HQ-XE	Lamb, D. Q.	NGT 00-050-189	2895
11	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Hildebrand, R.	NGT 00-050-073	2893
11	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Harper, D. A.	NGT 14-020-800	2901
11	UNIV OF CINCINNATI	Kondo, Y.	GSFC	Sitko, M. L.	NAG 5-872	4729
11	UNIV COLORADO-BOLDR	Fimmel, R. O.	ARC	Stewart, A. I.	NAG 2-504	2310
11	UNIV COLORADO-BOLDR	Lasher, L. E.	ARC	Ciancy, R. T.	NAG 2-517	2311
11	UNIV COLORADO-BOLDR	Craig, R. A.	ARC	Stewart, A. I.	NAS 2-12318	2393
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Garmany, K.	NAG 5-78	2313
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Linsky, J. L.	NAG 5-82	2314
11	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Cash, W. C.	NAG 5-96	2315

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Shull, J. M.	NAG 5-193	2316
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Ayres, T. R.	NAG 5-199	2317
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Brugal, E. W.	NAG 5-350	2318
11	UNIV COLORADO-BOLDR	Osantowski, J. F.	GSFC	Cash, W. C.	NAG 5-412	2319
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Walter, F. M.	NAG 5-429	2320
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Fesen, R. A.	NAG 5-433	2321
11	UNIV COLORADO-BOLDR	Bullock, G. D.	GSFC	Toomre, J.	NAG 5-513	2323
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Carpenter, K. G.	NAG 5-797	2325
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Stocke, J. T.	NAG 5-809	2326
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Stencel, R. E.	NAG 5-816	2327
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Skinner, T. E.	NAG 5-817	2328
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Van Buren, D.	NAG 5-828	2329
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Bohannan, B.	NAG 5-833	2330
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Cash, W. C.	NAG 5-948	2337
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Fitzpatrick, E. L.	NAG 5-963	2339
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Bookbinder, J.	NAG 5-984	2340
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Brown, A.	NAG 5-985	2341
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	McCray, R.	NAG 5-1000	2342
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Conti, P. S.	NAG 5-1016	2343
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Edelson, R.	NAG 5-1089	2344
11	UNIV COLORADO-BOLDR	Wolff, C. L.	GSFC	Blizard, J.	NAS 5-28196	2396
11	UNIV COLORADO-BOLDR	Mead, J.	GSFC	Snow, T.	NAS 5-28731	2397
11	UNIV COLORADO-BOLDR	Vitagliano, H. D.	GSFC	Carpenter, K.	NAS 5-29337	2400
11	UNIV COLORADO-BOLDR	Vitagliano, H. D.	GSFC	Walter, F.	NAS 5-29345	2401
11	UNIV COLORADO-BOLDR	Vitagliano, H. D.	GSFC	Brandt, J. C.	NAS 5-30511	2403
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Snow, T. P., Jr.	NSG 5300	2435
11	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Snow, T. P., Jr.	NSG 5303	2436
11	UNIV COLORADO-BOLDR	Harper, B.	MSFC	Walter, F. M.	NAG 8-508	2345
11	UNIV COLORADO-BOLDR	Harper, B.	MSFC	Stocke, J. T.	NAG 8-575	2346
11	UNIV COLORADO-BOLDR	Potter, P. Y.	MSFC	Linsky, J. L.	NAG 8-596	2347
11	UNIV COLORADO-BOLDR	Harper, B.	MSFC	Edelson, R. A.	NAG 8-651	2348
11	UNIV COLORADO-BOLDR	Harper, B. A.	MSFC	Stocke, J. T.	NAG 8-658	2349
11	UNIV COLORADO-BOLDR	Harper, B. A.	MSFC	Linsky, J. L.	NAG 8-744	2350
11	UNIV COLORADO-BOLDR	Harper, B. A.	MSFC	Walter, F. M.	NAG 8-745	2351
11	UNIV COLORADO-BOLDR	Butler, D. M.	HQ-EE	Dulk, G. A.	NAGW 91	2352
11	UNIV COLORADO-BOLDR	Rahe, J. H.	HQ-EL	Brandt, J. C.	NAGW 1387	2388
11	UNIV COLORADO-BOLDR	Mahapy, P.	HQ-EL	Warwick, J.	NASW 4024	2407
11	UNIV COLORADO-BOLDR	Mellott, M. M.	HQ-ES	Schull, J. M.	NAGW 766	2357
11	UNIV COLORADO-BOLDR	Stachnik, R. V.	HQ-EZ	Lawrence, E.	NASW 4115	2409
11	UNIV COLORADO-BOLDR	Nagy, T.	HQ-EZ	Hamilton, A. J.	NGT 00-050-279	2424
11	UNIV COLORADO-BOLDR	Kaluzienski, L.	HQ-EZ	McCray, R.	NSG 7128	2437
11	UNIV COLORADO-BOLDR	Stencel, R. E.	HQ-EZ	Snow, T. P.	NSG 7626	2440
11	UNIV OF DELAWARE	Kondo, Y.	GSFC	Shipman, H. L.	NAG 5-972	2485
11	UNIV OF DELAWARE	Harper, B.	MSFC	Shipman, H. L.	NAG 8-662	2486
11	UNIV OF DENVER	Goldberg, R.	GSFC	Barcus, J.	NAS 5-29311	2446
11	UNIV OF FLORIDA	Scargle, J. D.	ARC	Eichhorn, H. K.	NCA 2-230	2651
11	UNIV OF FLORIDA	Scargle, J. D.	ARC	Eichhorn, H. K.	NCA 2-325	2652
11	UNIV OF FLORIDA	Kaiser, M. L.	GSFC	Carr, T. D.	NAG 5-773	2636
11	UNIV OF FLORIDA	Evans, L. G.	HQ-EL	Gustafson, B. A.	NAGW 1257	2639
11	UNIV OF FLORIDA	Brinton, H. C.	HQ-EL	Giovane, F.	NAGW 1289	2640
11	UNIV OF FLORIDA	Brunk, W. E.	HQ-EL	Weinberg, J.	NASW 3578	2644
11	UNIV OF GEORGIA	Kondo, Y.	GSFC	Caillault, J. P.	NAG 5-974	2757
11	UNIV OF HAWAII-MANOA	Haughney, L. C.	ARC	Becklin, E. E.	NAG 2-418	2762
11	UNIV OF HAWAII-MANOA	Ramos, R.	ARC	Cruikshank, D. P.	NAG 2-424	2763
11	UNIV OF HAWAII-MANOA	Werner, M. W.	ARC	Sellgren, K.	NCA 2-75	2804
11	UNIV OF HAWAII-MANOA	Kondo, Y.	GSFC	Simon, T.	NAG 5-146	2764
11	UNIV OF HAWAII-MANOA	Kondo, Y.	GSFC	Cowie, L. L.	NAG 5-829	2766
11	UNIV OF HAWAII-MANOA	Kondo, Y.	GSFC	Hu, E. M.	NAG 5-993	2768
11	UNIV OF HAWAII-MANOA	Appler, R. A.	GSFC	Hall, D. N.	NAS 5-28595	2799
11	UNIV OF HAWAII-MANOA	Harper, B.	MSFC	Cowie, L. L.	NAG 8-730	2771

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV OF HAWAII-MANOA	Harper, B. A.	MSFC	Henry, J. P.	NAG 8-738	2772
11	UNIV OF HAWAII-MANOA	Brinton, H. C.	HQ-EL	Bell, W. J.	NAGW 802	2784
11	UNIV OF HAWAII-MANOA	Brinton, H. C.	HQ-EL	Lucey, P. G.	NAGW 1299	2792
11	UNIV OF HAWAII-MANOA	Rahe, J. H.	HQ-EL	Bell, J. F.	NAGW 1383	2794
11	UNIV OF HAWAII-MANOA	Brinton, H. C.	HQ-EL	Hall, D. N.	NASW 3159	2801
11	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	McCord, T. B.	NASW 4141	2803
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-EL	Jefferies, J. T.	NGF 12-001-103	2805
11	UNIV OF HAWAII-MANOA	Brinton, H. C.	HQ-EL	Hall, D. N.	NGL 12-001-057	2807
11	UNIV OF HAWAII-MANOA	Brinton, H. C.	HQ-EL	McCord, T. B.	NSG 7323	2812
11	UNIV OF HAWAII-MANOA	Stachnik, R. V.	HQ-EZ	Cowie, L. L.	NAGW 959	2787
11	UNIV OF HAWAII-MANOA	Ahluwalia, H. S.	HQ-EZ	Canifield, R.	NGL 12-001-011	2806
11	UNIV ILLINOIS-URBANA	Werner, M. W.	ARC	Lamb, S. A.	NCA 2-165	2954
11	UNIV ILLINOIS-URBANA	Kondo, Y.	GSFC	Kaler, J. B.	NAG 5-800	2941
11	UNIV ILLINOIS-URBANA	Kondo, Y.	GSFC	Kaler, J.	NAG 5-1064	2942
11	UNIV ILLINOIS-URBANA	Harper, B.	MSFC	Dickel, J. R.	NAG 8-540	2944
11	UNIV ILLINOIS-URBANA	Brinton, H. C.	HQ-EL	Snyder, L. E.	NAGW 1131	2948
11	UNIV ILLINOIS-URBANA	Gillett, F. C.	HQ-EZ	Watson, W. D.	NAGW 1104	2947
11	UNIV ILLINOIS-URBANA	Kaluziński, L.	HQ-EZ	Lamb, F. K.	NSG 7653	2972
11	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Dickel, J. R.	NGT 00-050-152	2961
11	UNIV OF IOWA	Craig, R. A.	ARC	Van Allen, J. A.	NAS 2-12327	3102
11	UNIV OF IOWA	Wales, R. O.	GSFC	Frank, L. A.	NAG 5-295	3085
11	UNIV OF IOWA	Wales, R. O.	GSFC	Mellott, M.	NAG 5-570	3088
11	UNIV OF IOWA	Wainscott, F.	GSFC	Frank, L. A.	NAS 5-26858	3105
11	UNIV OF IOWA	Brinton, H. C.	HQ-EL	Neff, J. S.	NAGW 796	3092
11	UNIV OF KANSAS	Stachnik, R. V.	HQ-EZ	Melott, A. L.	NAGW 1288	3145
11	UNIV MARYLAND-COL PK	Pearl, J. C.	GSFC	Khanna, R. K.	NAG 5-216	3302
11	UNIV MARYLAND-COL PK	Kondo, Y.	GSFC	A'hearn, M. F.	NAG 5-252	3304
11	UNIV MARYLAND-COL PK	Bullock, G. D.	GSFC	Kundu, M. R.	NAG 5-511	3313
11	UNIV MARYLAND-COL PK	Wales, R. O.	GSFC	Gloeckler, G.	NAG 5-705	3317
11	UNIV MARYLAND-COL PK	Jones, F. C.	GSFC	Bell, R.	NAG 5-723	3319
11	UNIV MARYLAND-COL PK	Wales, R. O.	GSFC	Gloeckler, G.	NAG 5-728	3321
11	UNIV MARYLAND-COL PK	Dwek, E.	GSFC	Trasco, J. D.	NAG 5-1039	3344
11	UNIV MARYLAND-COL PK	Kondo, Y.	GSFC	Wilson, A.	NAG 5-1079	3346
11	UNIV MARYLAND-COL PK	Owens, J. H.	MSFC	A'hearn, M. F.	NAG 8-486	3348
11	UNIV MARYLAND-COL PK	Dailey, C. C.	MSFC	Wilson, A. S.	NAG 8-529	3349
11	UNIV MARYLAND-COL PK	Potter, P.	MSFC	Wilson, A. S.	NAG 8-591	3350
11	UNIV MARYLAND-COL PK	Brinton, H. C.	HQ-EL	McFadden, L.	NAGW 824	3358
11	UNIV MARYLAND-COL PK	Brinton, H. C.	HQ-EL	A'hearn, M. F.	NAGW 902	3359
11	UNIV MARYLAND-COL PK	Brinton, H. C.	HQ-EL	A'hearn, M. F.	NSG 7322	3416
11	UNIV MARYLAND-COL PK	Mellott, M. M.	HQ-ES	Earl, J. A.	NGR 21-002-066	3392
11	UNIV MARYLAND-COL PK	Mellott, M. M.	HQ-ES	Mason, G.	NGR 21-002-224	3394
11	UNIV MARYLAND-COL PK	Stachnik, R. V.	HQ-EZ	Bell, R. A.	NAGW 1004	3363
11	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	A'hearn, M. F.	NGT 00-050-239	3401
11	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Kerr, F.	NGT 21-002-819	3407
11	UNIV OF MASS-AMHERST	Haughney, L. C.	ARC	Strom, S. E.	NAG 2-423	3653
11	UNIV OF MASS-AMHERST	Kondo, Y.	GSFC	Strom, S.	NAG 5-558	3654
11	UNIV OF MASS-AMHERST	Fox, K.	HQ-EL	Schloerb, F. P.	NAGW 1405	3665
11	UNIV OF MASS-AMHERST	Brinton, H. C.	HQ-EL	Irvine, W. M.	NGL 22-010-023	3668
11	UNIV MICH-ANN ARBOR	Fimmel, R. O.	ARC	Donahue, T.	NAG 2-488	3721
11	UNIV MICH-ANN ARBOR	Fimmel, R. O.	ARC	Nagy, A.	NAG 2-491	3722
11	UNIV MICH-ANN ARBOR	Lasher, L. E.	ARC	Fontheim, E. G.	NAG 2-518	3723
11	UNIV MICH-ANN ARBOR	Craig, R. A.	ARC	Donahue, T.	NAS 2-12314	3769
11	UNIV MICH-ANN ARBOR	Craig, R. A.	ARC	Nagy, A. F.	NAS 2-12315	3770
11	UNIV MICH-ANN ARBOR	Kondo, Y.	GSFC	MacAlpine, G. M.	NAG 5-552	3737
11	UNIV MICH-ANN ARBOR	Wales, R. O.	GSFC	Cravens, T.	NAG 5-565	3738
11	UNIV MICH-ANN ARBOR	Kondo, Y.	GSFC	Gaskell, C. M.	NAG 5-1001	3743
11	UNIV MICH-ANN ARBOR	Kondo, Y.	GSFC	Clarke, T. J.	NAG 5-1030	3745
11	UNIV MICH-ANN ARBOR	Mayer, E.	GSFC	Hays, P.	NAS 5-30336	3779
11	UNIV MICH-ANN ARBOR	Jones, J. L.	LARC	Tarle, G.	NAS 1-17820	3767
11	UNIV MICH-ANN ARBOR	Potter, P. Y.	MSFC	Teske, R. G.	NAG 8-594	3746

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV MICH-ANN ARBOR	Brinton, H. C.	HQ-EL	Atreya, S. K.	NAGW 1158	3759
11	UNIV MICH-ANN ARBOR	Quaide, W. L.	HQ-EL	Atreya, S.	NAGW 1185	3760
11	U MINN-MNPLS-ST PAUL	Harper, B.	MSFC	Waddington, C. J.	NAG 8-500	3826
11	U MINN-MNPLS-ST PAUL	Evans, L. G.	HQ-EL	Mauersberger, K.	NAGW 505	3829
11	U MINN-MNPLS-ST PAUL	Mellott, M. M.	HQ-ES	Waddington, C. J.	NGR 24-005-050	3843
11	U MINN-MNPLS-ST PAUL	Stencel, R. E.	HQ-EZ	Ney, E. P.	NSG 2014	3852
11	UNIV NEBRASKA-LINCLN	Kondo, Y.	GSFC	Leung, K. C.	NAG 5-825	3944
11	UNIV NEBRASKA-LINCLN	Kondo, Y.	GSFC	Schmidt, E. G.	NAG 5-839	3945
11	UNIV NEW HAMP-DURHAM	Lasher, L. E.	ARC	Vestrand, W. T.	NAG 2-521	3987
11	UNIV NEW HAMP-DURHAM	McDonald, F. B.	GSFC	Webber, W. R.	NAG 5-515	3988
11	UNIV NEW HAMP-DURHAM	Cooley, J.	GSFC	Lockwood, J. A.	NAS 5-26645	4001
11	UNIV NEW HAMP-DURHAM	Harper, G. A.	MSFC	Webber, W. R.	NAG 8-606	3991
11	UNIV NEW HAMP-DURHAM	Mellott, M. M.	HQ-ES	Webber, W. R.	NGR 30-002-052	4006
11	UNIV NEW HAMP-DURHAM	Kaluzienski, L. J.	HQ-EZ	Chupp, E. L.	NGL 30-002-021	4005
11	UNIV NEW HAMP-DURHAM	Kaluzienski, L. J.	HQ-EZ	Lockwood, J. A.	NSG 7481	4011
11	UNIV OF NEW MEXICO	Harper, B. A.	MSFC	Halpern, J.	NAG 8-668	4097
11	UNIV OF PENNSYLVANIA	Kondo, Y.	GSFC	Koch, R. H.	NAG 5-468	4939
11	UNIV OF PENNSYLVANIA	Kondo, Y.	GSFC	Koch, R. H.	NAG 5-1015	4940
11	UNIV OF PENNSYLVANIA	Carter, D. C.	MSFC	Voet, D. H.	NAG 8-611	4942
11	UNIV OF PITTSBURGH	Scargle, J.	ARC	Gatewood, G. D.	NAG 2-53	4952
11	UNIV OF PITTSBURGH	Werner, M. W.	ARC	Castelaz, M. W.	NCA 2-194	4960
11	UNIV OF PITTSBURGH	Brinton, H. C.	HQ-EL	Gatewood, G. D.	NAGW 1270	4958
11	UNIV OF PITTSBURGH	Underwood, J. R.	HQ-EL	Hapke, B.	NSG 7147	4964
11	UNIV OF ROCHESTER	Goebel, J. H.	ARC	Forrest, W. J.	NAG 2-117	4389
11	UNIV OF ROCHESTER	Haughney, L. C.	ARC	Wengler, M. J.	NAG 2-539	4390
11	UNIV OF SOUTHERN CAL	Kondo, Y.	GSFC	Peters, G. J.	NSG 5422	2274
11	UNIV SOUTHWESTERN LA	Reynolds, R. T.	ARC	Whitmire, D. P.	NCA 2-273	3209
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Harvey, P. M.	NAG 2-67	5281
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Dinerstein, H. L.	NAG 2-372	5282
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Jaffee, D. T.	NAG 2-419	5285
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Evans, N. J.	NAG 2-420	5286
11	UNIV TEXAS-AUSTIN	Werner, M. W.	ARC	Dinerstein, H. L.	NCA 2-34	5339
11	UNIV TEXAS-AUSTIN	Kondo, Y.	GSFC	Danly, L.	NAG 5-978	5301
11	UNIV TEXAS-AUSTIN	Kondo, Y.	GSFC	Lambert, D. L.	NAG 5-987	5302
11	UNIV TEXAS-AUSTIN	Kondo, Y.	GSFC	Winget, D. E.	NAG 5-994	5303
11	UNIV TEXAS-AUSTIN	Vitagliano, H. D.	GSFC	Trafton, L.	NAS 5-29395	5329
11	UNIV TEXAS-AUSTIN	Kondo, Y.	GSFC	Lambert, D. L.	NSG 5379	5363
11	UNIV TEXAS-AUSTIN	Taylor, W. E.	MSFC	Lambert, D. L.	NAS 8-32905	5332
11	UNIV TEXAS-AUSTIN	Harrington, M. M.	MSFC	Jefferys, W. H.	NAS 8-32906	5333
11	UNIV TEXAS-AUSTIN	Brinton, H. C.	HQ-EL	Smith, H. J.	NGR 44-012-152	5346
11	UNIV TEXAS-AUSTIN	Stachnik, R. V.	HQ-EZ	Tapley, B. D.	NAGW 1330	5324
11	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Smoluchowski, R.	NGT 00-050-180	5350
11	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Lambert, D. L.	NGT 00-050-249	5354
11	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Cochran, W. D.	NGT 00-050-311	5355
11	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Shapiro, P. R.	NGT 00-050-316	5356
11	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hofman, J. H.	NAS 8-35011	5384
11	UNIV TEXAS-DALLAS	Moore, T. E.	MSFC	Heelis, R. A.	NAS 8-36954	5385
11	UNIV TEXAS-DALLAS	Brinton, H. C.	HQ-EL	Hoffman, J. H.	NAGW 1267	5380
11	UNIV TEXAS-DALLAS	Brunk, W. E.	HQ-EL	Hoffman, J. H.	NASW 3576	5386
11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Morrison, N. D.	NAG 5-253	4761
11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Bopp, B. W.	NAG 5-954	4763
11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Anderson, L. S.	NAG 5-970	4764
11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Morrison, N. D.	NAG 5-979	4765
11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Witt, A.	NAG 5-1065	4766
11	UNIV OF TOLEDO	Kupperian, J. E.	GSFC	Molnar, M. R.	NSG 5006	4775
11	UNIV OF TOLEDO	Stencel, R. E.	HQ-EZ	Witt, A. N.	NAGW 89	4768
11	UNIV OF TOLEDO	Weiler, E. J.	HQ-EZ	Bopp, B. W.	NAGW 229	4769
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	O'connell, R. W.	NAG 5-256	5613
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	Thuan, T. X.	NAG 5-257	5614
11	UNIV OF VIRGINIA	Stecher, T. P.	GSFC	O'Connell, R. W.	NAG 5-700	5615

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	O'Connell, R. W.	NAG 5-838	5617
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	O'connell, R. W.	NAG 5-981	5620
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	O'connell, R. W.	NAG 5-1035	5622
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	Balbus, S.	NAG 5-1059	5623
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Bohm, K. H.	NAG 5-45	5738
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Brown, D.	NAG 5-357	5739
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Hodge, P. W.	NAG 5-1020	5748
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Szkody, P.	NSG 5395	5804
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Bohm-vitense, E.	NSG 5398	5805
11	UNIV OF WASHINGTON	Harper, B. A.	MSFC	Margon, B.	NAG 8-590	5751
11	UNIV OF WASHINGTON	Potter, P. Y.	MSFC	Deeter, J. E.	NAG 8-608	5752
11	UNIV OF WASHINGTON	Potter, P. Y.	MSFC	Szkody, P.	NAG 8-609	5753
11	UNIV OF WASHINGTON	Harper, B.	MSFC	Deeter, J. E.	NAG 8-695	5754
11	UNIV OF WASHINGTON	Harper, B. A.	MSFC	Szkody, P.	NAG 8-696	5755
11	UNIV OF WASHINGTON	Kaluzienski, L. J.	HQ-EZ	Deeter, J. E.	NAGW 1133	5775
11	UNIV OF WASHINGTON	Weiler, E. J.	HQ-EZ	Margon, B.	NAGW 1163	5778
11	UNIV OF WASHINGTON	Owens, F. C.	HQ-XE	Margon, B.	NGT 00-070-050	5803
11	UNIV OF WASHINGTON	Owens, F. C.	HQ-LE	Szkody, P.	NGT 00-070-002	5801
11	UNIV OF WASHINGTON	Owens, F. C.	HQ-LE	Vitense, E. B.	NGT 00-070-006	5802
11	UNIV WISC-MADISON	Craig, R. A.	ARC	Limaye, S.	NAG 2-265	5834
11	UNIV WISC-MADISON	Craig, R. A.	ARC	Revercomb, H.	NAG 2-266	5835
11	UNIV WISC-MADISON	Kondo, Y.	GSFC	Savage, B. D.	NAG 5-186	5845
11	UNIV WISC-MADISON	Kondo, Y.	GSFC	Mathis, J. S.	NAG 5-581	5849
11	UNIV WISC-MADISON	Kondo, Y.	GSFC	Friend, D. B.	NAG 5-804	5855
11	UNIV WISC-MADISON	Kondo, Y.	GSFC	Cardelli, J. A.	NAG 5-832	5856
11	UNIV WISC-MADISON	Kondo, Y.	GSFC	Clayton, G.	NAG 5-1078	5861
11	UNIV WISC-MADISON	Barr, A.	GSFC	Bliss, R.	NAS 5-24487	5882
11	UNIV WISC-MADISON	Mercanti, E.	GSFC	Kraushaer, W. L.	NAS 5-26078	5883
11	UNIV WISC-MADISON	Vitagliano, H. D.	GSFC	Savage, B. D.	NAS 5-29368	5885
11	UNIV WISC-MADISON	Vitagliano, H. D.	GSFC	Roesler, F.	NAS 5-30131	5887
11	UNIV WISC-MADISON	Johnson, W. G.	MSFC	Cassinelli, J. P.	NAG 8-534	5862
11	UNIV WISC-MADISON	Potter, P. Y.	MSFC	Cassinelli, J. P.	NAG 8-602	5863
11	UNIV WISC-MADISON	Harper, B.	MSFC	Hoessel, J. G.	NAG 8-725	5865
11	UNIV WISC-MADISON	Owens, J.	MSFC	Code, A. D.	NAS 5-26777	5884
11	UNIV WISC-MADISON	Brinton, H. C.	HQ-EL	Scherb, F.	NAGW 695	5870
11	UNIV WISC-MADISON	Stencel, R. E.	HQ-EZ	Cassinelli, J. P.	NAGW 283	5868
11	UNIV WISC-MADISON	Stachnik, R. V.	HQ-EZ	Cassinella, V.	NAGW 422	5869
11	UNIV WISC-MADISON	Owens, F. C.	HQ-XE	Savage, B. D.	NGT 00-070-024	5903
11	UNIV OF WYOMING	Haughney, L. C.	ARC	Thronson, H. A., Jr.	NAG 2-134	5912
11	UNIV OF WYOMING	Brinton, H. C.	HQ-EL	Johnson, P. E.	NAGW 874	5916
11	UNIV OF WYOMING	Brinton, H. C.	HQ-EL	Howell, R. R.	NAGW 1276	5918
11	UTAH STATE UNIV	Jones, J. L.	LARC	Lind, D. L.	NAG 1-702	5450
11	VALPARISO UNIV	Kondo, Y.	GSFC	Hrivnak, B. J.	NAG 5-964	3053
11	VANDERBILT UNIVERSTY	Kondo, Y.	GSFC	Fekel Jr., F. C.	NAG 5-397	5081
11	VILLANOVA UNIVERSITY	Kondo, Y.	GSFC	Sion, E. M.	NAG 5-343	4965
11	VILLANOVA UNIVERSITY	Kondo, Y.	GSFC	Guinan, E. F.	NAG 5-382	4966
11	VILLANOVA UNIVERSITY	Kondo, Y.	GSFC	Ambruster, C.	NAG 5-980	4967
11	VILLANOVA UNIVERSITY	Kondo, Y.	GSFC	Guinan, E. F.	NAG 5-982	4968
11	VIRGINIA POLY INST	Johnson, W. G.	MSFC	O'dell, S. L.	NAG 8-453	5705
11	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Dugger, W. E.	NGT 47-004-810	5722
11	WASHINGTON ST UNIV	Kondo, Y.	GSFC	Lutz, J. H.	NAG 5-410	5810
11	WASHINGTON ST UNIV	Kondo, Y.	GSFC	Lutz, J.	NAG 5-1075	5811
11	WASHINGTON UNIVERSTY	Ormes, J. F.	GSFC	Binns, W. R.	NAG 5-846	3893
11	WASHINGTON UNIVERSTY	Harper, B. A.	MSFC	Israel, M. H.	NAG 8-498	3894
11	WASHINGTON UNIVERSTY	Brinton, H. C.	HQ-EL	Smith, W. H.	NAGW 883	3906
11	WASHINGTON UNIVERSTY	Brinton, H. C.	HQ-EL	Smith, W. H.	NSG 7334	3925
11	WASHINGTON UNIVERSTY	Mellott, M. M.	HQ-ES	Israel, M. H.	NGR 26-008-001	3911
11	WHEATON COLLEGE	Kondo, Y.	GSFC	Barker, T.	NSG 5376	3677
11	WILLIAMS COLLEGE	Kondo, Y.	GSFC	Friend, D. B.	NAG 5-1029	3678
11	YALE UNIVERSITY	Curtis, S. A.	HQ-ES	Demarque, P.	NAGW 777	2467

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	YALE UNIVERSITY	Owens, F. C.	HQ-LE	Demarque, P.	NGT 07-001-800	2476
12	ALABAMA A&M UNIV	Austin, J. G., Jr.	MSFC	Thompson, J. H.	NAS 8-36299	1016
12	ARIZONA STATE UNIV	Owens, F. C.	HQ-LE	Greeley, R.	NGT 03-001-803	1258
12	ARKANSAS COL	Gibson, E. K.	JSC	Bustin, R.	NAG 9-222	1439
12	BOWLING GRN STATE U	Owens, F. C.	HQ-LE	Srinivasan, V.	NGT 36-002-800	4479
12	CALIF INST OF TECH	Browne, I. D.	JSC	Epstein, S.	NAG 9-46	1475
12	CALIF INST OF TECH	Devincenzi, D. L.	HQ-EB	Yung, Y. L.	NAGW 254	1484
12	CALIF INST OF TECH	Rummel, J. D.	HQ-EB	Epstein, S.	NAGW 1435	1497
12	CALIF INST OF TECH	Owens, F. C.	HQ-XE	McKoy, V.	NGT 00-050-170	1521
12	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Anderson, A. B.	NAG 3-688	4500
12	CASE WESTERN RESERVE	Ferguson, D. C.	LERC	Ech, T. G.	NAG 3-696	4502
12	CASE WESTERN RESERVE	Philipp, W. H.	LERC	Adler, R. J.	NCC 3-80	4549
12	CASE WESTERN RESERVE	Brabbs, T. A.	LERC	Prahl, J. M.	NCC 3-85	4551
12	CASE WESTERN RESERVE	Meador, M. A.	LERC	Jukenik, C. N.	NCC 3-112	4557
12	CASE WESTERN RESERVE	Owens, F. C.	HQ-XE	Sukenik, C. N.	NGT 00-050-136	4561
12	CASE WESTERN RESERVE	Owens, F. C.	HQ-XE	Youngs, W.	NGT 00-050-375	4564
12	CATHOLIC UNIVERSITY	Nava, D. F.	GSFC	Sanders, W. A.	NSG 5173	2517
12	CHRISTPHR NEWPRT COL	Rhinehart, R. P.	LARC	Sacks, L. J.	NAG 1-268	5473
12	CHRISTPHR NEWPRT COL	Conway, E. J.	LARC	Chang, C. K.	NAG 1-523	5475
12	CLEVELAND STATE UNIV	Crandall, K. S.	LERC	Megargle, R. G.	NCC 3-47	4594
12	COLUMBIA UNIVERSITY	Owens, F. C.	HQ-XE	Wolgemuth, D. J.	NGT 00-050-315	4183
12	CORNELL UNIVERSITY	Rummel, J.	HQ-EB	Usher, D. A.	NAGW 493	4205
12	CORNELL UNIVERSITY	Rummel, J. D.	HQ-EB	Sagan, C. E.	NGR 33-010-101	4239
12	DUKE UNIVERSITY	Owens, F. C.	HQ-XE	Richardson, D.	NGT 00-050-366	4409
12	ECKERD COLLEGE	Donn, B.	GSFC	Hudson, R. L.	NAG 5-952	2577
12	FLORIDA A&M UNIV	Huo, W. M.	ARC	Weatherford, C. A.	NCC 2-492	2583
12	GEORGIA SOUTHERN COL	Donn, B.	GSFC	Nelson, R. H.	NAG 5-496	2749
12	HAMPTON UNIVERSITY	Hergenrother, P. M.	LARC	Nwokogu, G.	NAG 1-905	5519
12	INDIANA U-BLOOMINGTN	Rummel, J.	HQ-EB	Hayes, J. M.	NGR 15-003-118	2984
12	INDIANA U-BLOOMINGTN	Owens, F. C.	HQ-XE	Hayes, J. M.	NGT 00-050-237	2985
12	LEHIGH UNIVERSITY	Chackerian, C.	ARC	Lovejoy, R.	NCA 2-98	4858
12	LEHIGH UNIVERSITY	Chackerian, C.	ARC	Lovejoy, R. W.	NCA 2-260	4859
12	MARY WASHINGTON COL	Alston, W. B.	LERC	Gratz, R. F.	NAG 3-794	5527
12	MASS INST OF TECH	Ormes, J. A.	GSFC	Post, R. S.	NAG 5-874	3535
12	MASS INST OF TECH	Rummel, J. D.	HQ-EB	Frankel, R. B.	NAGW 114	3563
12	MASS INST OF TECH	Rummel, J. D.	HQ-EB	Rich, A.	NGR 22-009-277	3614
12	MICHIGAN STATE UNIV	Meador, M. A.	LERC	Hart, H.	NAG 3-670	3694
12	MICHIGAN TECH UNIV	Dreshfield, R. L.	LERC	Heckel, R. W.	NAG 3-216	3704
12	MONTANA STATE UNIV	Sauer, R. L.	JSC	McFeters, G. A.	NAG 9-241	3928
12	NO CAR A&T STATE U	Mapp, M. W.	LERC	Williamson, A. N.	NAG 3-739	4424
12	NORTHROP UNIVERSITY	Van Tassel, K.	JSC	Maddox, A.	NAG 9-273	1568
12	NORTHWESTERN UNIV	Jones, W. R.	LERC	Stair, P. C.	NAG 3-896	2830
12	OLD DOMINION UNIV	Baucom, R. M.	LARC	Hou, J. W.	NAG 1-561	5540
12	OLD DOMINION UNIV	Baucom, R. M.	LARC	Tiwari, S. N.	NAG 1-569	5541
12	OLD DOMINION UNIV	Phillips, D. H.	LARC	Ake, R. L.	NAG 1-596	5543
12	PA ST U-HERSHEY MED	Owens, F. C.	HQ-XE	Severs, W. B.	NGT 00-070-035	4867
12	PENN STATE U-UNIV PK	Lezberg, E. A.	LERC	Frenklach, M.	NAG 3-668	4876
12	POLY INST OF NY	Devincenzi, D. L.	HQ-EB	Eirich, F. R.	NGR 33-006-070	4284
12	PORTLAND STATE UNIV	Owens, F. C.	HQ-XE	O'Brien, R. J.	NGT 00-070-054	4816
12	PURDUE UNIVERSITY	Browne, I. D.	JSC	Lipschutz, M. E.	NAG 9-48	3017
12	PURDUE UNIVERSITY	Lezberg, E.	LERC	Laurendeau, N. M.	NAG 3-360	3002
12	RENSSELAER POLY-NY	Rummel, J. D.	HQ-EB	Ferris, J. P.	NGR 33-018-148	4306
12	RUTGERS ST U-N BRNSK	Owens, F. C.	HQ-XE	Hewins, R.	NGT 00-050-219	4062
12	ST NORBERT COLLEGE	Delvigs, P.	LARC	Klopotek, D. L.	NAG 3-710	5831
12	SAN FRAN STATE UNIV	Devincenzi, D. L.	HQ-EB	Orenberg, J. B.	NAGW 324	1578
12	SAN JOSE STATE UNIV	Chang, S.	ARC	Ling, A. C.	NCC 2-153	1599
12	SAN JOSE STATE UNIV	Wydeven, T. J.	ARC	Spitze, L. R.	NCC 2-442	1611
12	SAN JOSE STATE UNIV	Jaffe, R. L.	ARC	Ling, A. C.	NCC 2-516	1615
12	SAN JOSE STATE UNIV	Owens, F. C.	HQ-XE	Yengoyan, L. S.	NGT 00-070-068	1617
12	GEORGIA INST OF TECH	Baucom, R. M.	LARC	Muzzy, J. D.	NAG 1-864	2705

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
12	GEORGIA INST OF TECH	Snyder, R. S.	MSFC	Suddath, F. L.	NAG 8-713	2722
12	GEORGIA INST OF TECH	Owens, F. C.	HQ-XE	Suddath, F. L.	NGT 00-050-208	2741
12	SW TEXAS STATE UNIV	St Clair, A. K.	LARC	Cassidy, P. E.	NAG 1-631	5142
12	STANFORD UNIVERSITY	Jaffe, R. L.	ARC	Zare, R. N.	NAG 2-472	1635
12	STANFORD UNIVERSITY	Altman, R. L.	ARC	Boudart, M.	NCA 2-158	1690
12	STANFORD UNIVERSITY	Cooper, D. M.	ARC	Madix, R. J.	NCC 2-394	1748
12	STATE U NY-BINGHAMTN	Owens, F. C.	HQ-XE	Janauer, G. E.	NGT 00-050-226	4335
12	STATE U NY-STONY BRK	Chang, S.	ARC	Scattergood, T. W.	NCC 2-311	4367
12	STATE U NY-STONY BRK	Sutter, J. K.	LERC	Gelernter, H. L.	NAG 3-651	4354
12	STATE U NY-STONY BRK	Rummel, J. D.	HQ-EB	Owens, T.	NAGW 725	4359
12	TEXAS A&M UNIVERSITY	Price, D. F.	JSC	Bockris, J. O.	NAG 9-283	5185
12	TEXAS A&M UNIVERSITY	Thompson, D. R.	JSC	Bockris, J. O.	NAG 9-289	5186
12	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Hossner, L.	NGT 00-050-215	5203
12	TEXAS SOUTHERN UNIV	McKay, D. S.	JSC	Wilson, B. L.	NAG 9-299	5219
12	TUSKEGEE INSTITUTE	Bryan, C. J.	KSC	Vahdat, N.	NAG10-31	1057
12	UTICA COLLEGE	Sutter, J. K.	LERC	Cerny, L. C.	NAG 3-842	4395
12	UNIV OF AKRON	Hergenrother, P. M.	LARC	Harris, F. W.	NAG 1-448	4686
12	UNIV ALA-BIRMINGHAM	Rummel, J. D.	HQ-EB	Lacey, J. C., Jr.	NGR 01-010-001	1073
12	UNIV ALA-HUNTSVILLE	Fields, S. A.	MSFC	Lundquist, C. A.	NAG 8-60	1088
12	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Torr, D. G.	NAG 8-67	1091
12	UNIV ALA-HUNTSVILLE	Peters, P. N.	MSFC	Gregory, J. C.	NAS 8-36645	1154
12	UNIV ALA-HUNTSVILLE	Higgins, D.	MSFC	Baird, J. K.	NAS 8-37195	1160
12	UNIV OF ARIZONA	Browne, I. D.	JSC	Boynton, W. V.	NAG 9-37	1310
12	UNIV OF ARIZONA	Browne, I. D.	JSC	Drake, M. J.	NAG 9-39	1311
12	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Weinberg, M. C.	NGT 00-050-287	1414
12	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Drake, M. J.	NGT 00-050-051	1405
12	UNIV ARKANSAS-FAYETV	Owens, F. C.	HQ-LE	Sears, D. W.	NGT 00-050-064	1448
12	UNIV CALIF-BERKELEY	Rummel, J. D.	HQ-EB	Jukes, J. H.	NGR 05-003-460	1885
12	UNIV CALIF-DAVIS	Rummel, J. D.	HQ-EB	Deamer, D. W.	NAGW 1119	1926
12	UNIV CALIF-L ANGELES	Toon, O. B.	ARC	Siscoe, G. L.	NCA 2-305	2047
12	UNIV CALIF-L ANGELES	Browne, I. D.	JSC	Kerridge, J. F.	NAG 9-27	2002
12	UNIV CALIF-L ANGELES	Rummel, J. D.	HQ-EB	Kerridge, J. F.	NAGW 347	2011
12	UNIV CALIF-L ANGELES	Owens, F. C.	HQ-LE	Nicol, M. F.	NGT 05-006-801	2062
12	UNIV CALIF-RIVERSIDE	Owens, F. C.	HQ-XE	Scott, G. W.	NGT 00-050-156	2074
12	UNIV CALIF-SAN DIEGO	Browne, I. D.	JSC	Arnold, J. R.	NAG 9-33	2103
12	UNIV CALIF-SAN DIEGO	Browne, I. D.	JSC	Marti, K.	NAG 9-41	2104
12	UNIV CALIF-SAN DIEGO	Harper, B.	MSFC	Gruber, D. E.	NAG 8-645	2099
12	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Thiemens, M. H.	NGT 00-050-174	2156
12	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Miller, S. L.	NGT 00-050-296	2158
12	UNIV CALIF-S CRUZ	Chang, S.	ARC	Kanavarioti, A.	NCA 2-289	2217
12	UNIV CALIF-S CRUZ	Chang, S.	ARC	Kanavarioti, A.	NCC 2-534	2224
12	UNIV OF CHICAGO	Kondo, Y.	GSFC	York, D. G.	NAG 5-286	2846
12	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Anders, E.	NGT 00-050-015	2890
12	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Clayton, R. N.	NGT 00-050-041	2891
12	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Clayton, R. N.	NGT 14-020-806	2906
12	UNIV COLORADO-DENVER	Owens, F. C.	HQ-XE	Stedman, D. H.	NGT 00-050-318	2441
12	UNIV OF DENVER	Heaps, W. S.	GSFC	Stedman, D. H.	NAG 5-845	2444
12	UNIV OF DENVER	Owens, F. C.	HQ-LE	Stedman, D. H.	NGT 00-050-013	2449
12	UNIV HOUSTON-HOUSTON	Jaffe, R. L.	ARC	Kouri, D. J.	NAG 2-503	5223
12	UNIV HOUSTON-HOUSTON	Schneider, H. J.	JSC	Middleditch, B. S.	NAG 9-218	5243
12	UNIV HOUSTON-HOUSTON	Counts, J.	HQ-XE	Fox, G.	NGT 00-050-173	5265
12	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-LE	Fox, G.	NGT 00-050-026	5261
12	UNIV ILLINOIS-URBANA	Fogleman, S. W.	HQ-EB	Woese, C. R.	NSG 7044	2971
12	UNIV OF IOWA	Williamson, G. S.	LERC	Coffman, R. E.	NAG 3-893	3084
12	UNIV OF KENTUCKY	Jaffe, R. L.	ARC	Pattengill, M. D.	NCC 2-483	3171
12	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Khanna, R. K.	NSG 5172	3413
12	UNIV MARYLAND-COL PK	Devincenzi, D. L.	HQ-EB	Ponnamperuma, C.	NAGW 954	3360
12	UNIV MARYLAND-COL PK	Fogleman, S. W.	HQ-EB	Ponnamperuma, C. A.	NGR 21-002-317	3396
12	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Khanna, R. K.	NGT 00-050-148	3399
12	UNIV OF MIAMI	Rummel, J. D.	HQ-EB	Fox, S. W.	NGR 10-007-008	2673

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
12	UNIV MICH-ANN ARBOR	Rummel, J. D.	HQ-EB	Walker, J. C.	NAGW 176	3751
12	U MINN-MNPLS-ST PAUL	Cooper, D. M.	ARC	Truhlar, D. G.	NCC 2-526	3842
12	U MINN-MNPLS-ST PAUL	Quaide, W. L.	HQ-EL	Nier, A. O.	NASW 4215	3839
12	UNIV MO-ROLLA	Sutton, K.	LARC	Biolsi, L., Jr.	NAG 1-380	3882
12	UNIV OF PENNSYLVANIA	Bittker, D.	LERC	Seider, W. D.	NAG 3-652	4938
12	UNIV OF QUEENSLAND	Sykes, G. F.	LARC	O'donnell, J. H.	NAGW 686	5931
12	UNIV OF RHODE ISLAND	Rummel, J.	HQ-EB	Ferris, J.	NAGW 1016	5003
12	UNIV OF ROCHESTER	Jalink, A.	LARC	Schmid, A.	NAG 1-910	4388
12	UNIV OF SANTA CLARA	Chang, S.	ARC	White, D. H.	NCC 2-166	2250
12	UNIV TEXAS-AUSTIN	Jones, W. R.	LERC	Lagow, R. J.	NAG 3-602	5288
12	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Odum, W. E.	NGT 00-050-345	5645
12	UNIV OF WASHINGTON	McLachlan, B. G.	ARC	Gouterman, M.	NCA 2-296	5794
12	UNIV OF WASHINGTON	Chang, S.	ARC	MacKlin, J. W.	NCC 2-268	5796
12	COLLEGE OF WM & MARY	Freeman, W. T., Jr.	LARC	Kranbuehl, D. E.	NAG 1-237	5479
12	COLLEGE OF WM & MARY	Long, S. T.	LARC	Kiefer, R. L.	NAG 1-678	5482
12	COLLEGE OF WM & MARY	Freeman, W. T.	LARC	Kranbuehl, D. E.	NAG 1-896	5488
12	COLLEGE OF WM & MARY	Long, S. T.	LARC	Kiefer, R. L.	NCC 1-126	5496
12	COLLEGE OF WM & MARY	Owens, F. C.	HQ-XE	Kiefer, R.	NGT 00-070-091	5500
12	VIRGINIA COMNWLTH U	Hergenrother, P. M.	LARC	Bass, R. G.	NAG 1-239	5650
12	VIRGINIA COMNWLTH U	Johnston, N. J.	LARC	Ottenbrite, R. M.	NAG 1-672	5652
12	VIRGINIA COMNWLTH U	Williams, M. D.	HQ-	Vallarino, L. M.	NAG 1-594	5651
12	WAKE FOREST UNIV	Phillips, D. H.	LARC	Jackels, C. F.	NCC 1-55	4475
12	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Crozaz, G.	NGT 00-050-295	3920
12	WORCESTER POLY INST	Roberts, B.	JSC	Sacco, A.	NAG 9-221	3690
13	ALABAMA A&M UNIV	Randall, J. L.	MSFC	McGuire, S. C.	NAG 8-27	1003
13	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Chong, K.	NAG 8-45	1006
13	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Matthaeus, W. H.	NAG 8-64	1007
13	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Lal, R. B.	NAG 8-76	1008
13	ALABAMA A&M UNIV	Randall, J. L.	MSFC	George, M. C.	NAG 8-107	1011
13	ALABAMA A&M UNIV	Owens, F. C.	HQ-XE	Lal, R. B.	NGT 00-050-358	1019
13	AMERICAN UNIVERSITY	Owens, F. C.	HQ-XE	Kay, R. B.	NGT 00-050-333	2498
13	ATLANTA UNIVERSITY	Flood, D. J.	LERC	Neal, H. L.	NAG 3-777	2686
13	AUBURN UNIV-AUBURN	Carruth, M. R.	MSFC	Fromhold, A. T.	NAS 8-36471	1034
13	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-XE	Barnes, P. A.	NGT 00-050-133	1040
13	BOSTON UNIVERSITY	Curtis, S. A.	GSFC	Mendillo, M.	NAG 5-490	3421
13	BOSTON UNIVERSITY	Early, L. J.	GSFC	Mendillo, M.	NAG 5-640	3423
13	BOSTON UNIVERSITY	Ormes, J. F.	GSFC	Beatty, J. J.	NAG 5-1013	3426
13	BOSTON UNIVERSITY	Mellott, M. M.	HQ-ES	Beatty, J. J.	NAGW 1032	3430
13	BOWIE STATE COLLEGE	Caruso, A. J.	GSFC	Bhatia, M. S.	NGR 21-027-010	3222
13	BRANDEIS UNIVERSITY	Owens, F. C.	HQ-XE	Wardle, J. F.	NGT 00-050-308	3442
13	BROOKLYN COLLEGE	Townsend, L. W.	LARC	Franco, V.	NAG 1-418	4108
13	BROWN UNIVERSITY	Degnan, J. J.	GSFC	Lawandy, N. M.	NAG 5-526	4974
13	BROWN UNIVERSITY	Owens, F. C.	HQ-XE	Lawady, N.	NGT 00-050-146	4992
13	CALIF INST OF TECH	Cooper, D. M.	ARC	McKoy, V.	NCC 2-319	1508
13	CALIF INST OF TECH	Bullock, G. D.	GSFC	Zirin, H.	NAG 5-508	1458
13	CALIF INST OF TECH	Wales, R. O.	GSFC	Zirin, H.	NAG 5-830	1463
13	CALIF INST OF TECH	Ormes, J. F.	GSFC	Mewaldt, R. A.	NAG 5-878	1465
13	CALIF INST OF TECH	Dabbs, J. R.	MSFC	Prince, T. A.	NAG 8-588	1470
13	CALIF INST OF TECH	Mellott, M. M.	HQ-ES	Blandford, R. D.	NAGW 1301	1493
13	CALIF INST OF TECH	Gergely, T. E.	HQ-EZ	Zirin, H.	NAGW 832	1487
13	CALIF INST OF TECH	Owens, F. C.	HQ-XE	Libbrecht, K. G.	NGT 00-050-187	1522
13	CALIF INST OF TECH	Owens, F. C.	HQ-LE	Prince, T. A.	NGT 00-050-092	1518
13	CALIF INST OF TECH	Owens, F. C.	HQ-LE	Lewis, J. S.	NGT 05-002-802	1524
13	CAL STATE U-FULLERTN	Browne, I. D.	JSC	Woolum, D. S.	NAG 9-57	1545
13	CAL STATE U-NRTHRDGE	Ahluwalia, H. S.	HQ-EZ	Chapman, G. A.	NAGW 688	1557
13	CAL STATE U-NRTHRDGE	Owens, F. C.	HQ-XE	Seki, R.	NGT 00-070-075	1559
13	CASE WESTERN RESERVE	Goldstein, M. E.	LERC	Reshotko, E.	NAG 3-640	4496
13	CASE WESTERN RESERVE	Good, B. S.	LERC	Segall, B.	NAG 3-698	4503
13	CASE WESTERN RESERVE	Ferrante, J.	LERC	Segall, B.	NAG 3-779	4513
13	CASE WESTERN RESERVE	Ferguson, D. C.	LERC	Greber, I.	NAG 3-795	4517

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	CASE WESTERN RESERVE	Aron, P. R.	LERC	Farrell, D. E.	NAG 3-814	4521
13	CASE WESTERN RESERVE	Gray, H. R.	LERC	Ostrach, S.	NAG 3-840	4525
13	CASE WESTERN RESERVE	Haugland, E.	LERC	Segall, B.	NCC 3-25	4537
13	CASE WESTERN RESERVE	Ferrante, J.	LERC	Gordon, W. L.	NCC 3-71	4545
13	CATHOLIC UNIVERSITY	Danchenko, V.	GSFC	Litovchenko, V.	NAG 5-864	2507
13	CATHOLIC UNIVERSITY	Abshire, J. B.	GSFC	Meijer, P. H.	NAG 5-1036	2509
13	CATHOLIC UNIVERSITY	Fitzenreiter, R. J.	HQ-EE	Whang, Y. C.	NAGW 1057	2512
13	CATHOLIC UNIVERSITY	Mellott, M. M.	HQ-ES	Whang, Y. C.	NAGW 738	2511
13	CATHOLIC UNIVERSITY	Ahluwalia, H. S.	HQ-EZ	Wertz, C.	NAGW 1365	2514
13	CATHOLIC UNIVERSITY	Owens, F. C.	HQ-XE	Bruhweiler, F.	NGT 00-070-043	2515
13	CHRISTPHR NEWPRT COL	Madaras, E. I.	LARC	Smith, B. T.	NAG 1-431	5474
13	CHRISTPHR NEWPRT COL	Byvik, C. E.	LARC	Buoncrisiani, A. M.	NAG 1-585	5476
13	CHRISTPHR NEWPRT COL	Brockman, P.	LARC	Buoncrisiani, A. M.	NAG 1-796	5477
13	CITY COLLEGE OF N Y	Byrik, C. E.	LARC	Alfano, R. R.	NAG 1-499	4111
13	CITY COLLEGE OF N Y	Allario, F.	LARC	Alfano, R. R.	NAG 1-810	4112
13	CITY COLLEGE OF N Y	Owens, F. C.	HQ-XE	Johnson, J. A.	NGT 00-070-053	4118
13	CLARKSON UNIVERSITY	Fogle, V.	MSFC	Subramanian, R. S.	NAS 8-32944	4128
13	CLEMSON UNIV-CLEMSON	Early, L. J.	GSFC	Larsen, M. F.	NAG 5-632	5012
13	CLEMSON UNIV-CLEMSON	Smalley, L.	MSFC	Ray, J. R.	NAG 8-48	5014
13	CLEMSON UNIV-CLEMSON	Stone, J. F.	MSFC	Duncan, L. M.	NAS 8-37851	5015
13	CLEMSON UNIV-CLEMSON	Owens, F. C.	HQ-LB	Isgell, J. T.	NGT 41-001-800	5023
13	CLEVELAND STATE UNIV	Weinberg, I.	LERC	Goradia, C.	NAG 3-138	4569
13	CLEVELAND STATE UNIV	Ferrante, J.	LERC	Schlosser, H.	NAG 3-780	4580
13	CLEVELAND STATE UNIV	Aron, P. R.	LERC	Hambourgen, P. D.	NAG 3-873	4581
13	CLEVELAND STATE UNIV	Ferrante, J.	LERC	Kaufman, M.	NAG 3-924	4584
13	COLORADO STATE UNIV	Pouch, J. J.	LERC	Lile, D. L.	NAG 3-633	2279
13	COLORADO STATE UNIV	Rutledge, S. K.	LERC	Wilbur, P. J.	NAG 3-791	2281
13	COLUMBIA UNIVERSITY	Early, L. J.	GSFC	Novick, R.	NAG 5-618	4142
13	COLUMBIA UNIVERSITY	Early, L. J.	GSFC	Martin, C.	NAG 5-642	4143
13	COLUMBIA UNIVERSITY	Mellott, M. M.	HQ-ES	Bhattacharjee, A.	NAGW 894	4163
13	COLUMBIA UNIVERSITY	Owens, F. C.	HQ-XE	Martin, C.	NGT 00-050-198	4181
13	COLUMBIA UNIVERSITY	Owens, F. C.	HQ-LE	Novick, R.	NGT 00-050-029	4180
13	CORNELL UNIVERSITY	Early, L. J.	GSFC	Kintner, P. M.	NAG 5-601	4195
13	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Gierasch, P. J.	NAS 5-23236	4230
13	CORNELL UNIVERSITY	Mellott, M. M.	HQ-EE	Seyler, C. E.	NAGW 757	4208
13	CORNELL UNIVERSITY	Fitzenreiter, R. J.	HQ-EE	Kelley, M. C.	NAGW 1091	4217
13	CORNELL UNIVERSITY	Ahluwalia, H. S.	HQ-ES	Sudan, R. N.	NAGW 1006	4213
13	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Burns, J. A.	NGT 00-050-188	4241
13	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Sievers, A. J.	NGT 00-050-264	4245
13	DARTMOUTH COLLEGE	O'Brien, J.	GSFC	Hudson, M. K.	NAS 5-29233	3982
13	DARTMOUTH COLLEGE	Fitzenreiter, R. J.	HQ-EE	Hayes, M. A.	NAGW 1058	3978
13	DARTMOUTH COLLEGE	Mellott, M. M.	HQ-ES	Montgomery, D. C.	NAGW 710	3976
13	DARTMOUTH COLLEGE	Desch, M. D.	HQ-ES	Hudson, M. K.	NAGW 809	3977
13	DARTMOUTH COLLEGE	Mellott, M. M.	HQ-ES	Lotko, W.	NAGW 1169	3980
13	DE PAUW UNIVERSITY	Denton, T. L.	MSFC	Brooks, H. L.	NAG 8-722	2973
13	DUKE UNIVERSITY	Castles, S. H.	GSFC	Meyer, H.	NAG 5-379	4401
13	FISK UNIVERSITY	Randall, J. L.	MSFC	Silberman, E.	NAG 8-25	5039
13	FISK UNIVERSITY	Randall, J. L.	MSFC	Silberman, E.	NAG 8-113	5040
13	FLORIDA A&M UNIV	Temkin, A.	GSFC	Weatherford, C. A.	NAG 5-738	2580
13	HAMPTON UNIVERSITY	Meador, W. E.	LARC	Venable, D. D.	NAG 1-400	5505
13	HAMPTON UNIVERSITY	Costen, R. C.	LARC	Han, K. S.	NAG 1-441	5506
13	HAMPTON UNIVERSITY	Townsend, L. W.	LARC	Buck, W.	NAG 1-477	5508
13	HAMPTON UNIVERSITY	Wilson, J. W.	LARC	Buck, W. W.	NAG 1-656	5510
13	HAMPTON UNIVERSITY	Brockman, P.	LARC	Farrukh, U. O.	NAG 1-666	5511
13	HAMPTON UNIVERSITY	Barnes, J. C.	LARC	Lowe, C.	NAG 1-827	5516
13	HAMPTON UNIVERSITY	Hess, R. V.	LARC	Whitney, D. A.	NAG 1-877	5517
13	HAMPTON UNIVERSITY	Owens, F. C.	HQ-XE	Buck, W. W.	NGT 00-050-344	5524
13	HARVARD UNIVERSITY	Ahluwalia, H. S.	HQ-ES	Parkinson, W. H.	NGL 22-007-006	3471
13	HARVARD UNIVERSITY	Owens, F. C.	HQ-XE	Grindlay, J. E.	NGT 00-050-290	3478
13	HARVARD UNIVERSITY	Owens, F. C.	HQ-XE	Stanley, H. E.	NGT 00-050-300	3479

**NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	HOWARD UNIVERSITY	Osantowski, J. F.	GSFC	Catchings, R. M.	NAG 5-79	2555
13	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Tsang, T.	NAG 5-156	2556
13	HOWARD UNIVERSITY	Alterescu, S.	GSFC	Thorpe, A. N.	NAG 5-1057	2564
13	HOWARD UNIVERSITY	Powell, J. A.	LERC	Harris, G. L.	NAG 3-887	2554
13	INDIANA U-BLOOMINGTN	Mellott, M. M.	HQ-ES	Heinz, R. M.	NAGW 1035	2983
13	INDIANA U-BLOOMINGTN	Owens, F. C.	HQ-XE	Heinz, R. M.	NGT 00-050-298	2986
13	IOWA STATE UNIV	Mellott, M. M.	HQ-ES	Willson, L. A.	NAGW 1364	3070
13	JOHNS HOPKINS UNIV	Early, L. J.	GSFC	Feldman, P. D.	NAG 5-619	3235
13	JOHNS HOPKINS UNIV	Wales, R.	GSFC	Lui, A. T.	NAG 5-759	3236
13	JOHNS HOPKINS UNIV	Fowler, W. S.	GSFC	Fastie, W. G.	NAS 5-25358	3256
13	JOHNS HOPKINS UNIV	Behannon, K. W.	HQ-EE	Williams, D. J.	NAGW 497	3245
13	JOHNS HOPKINS UNIV	Theis, R. F.	HQ-EE	Roelof, E. C.	NAGW 773	3249
13	JOHNS HOPKINS UNIV	Mellott, M. M.	HQ-EE	Potemra, T. A.	NSG 7055	3272
13	JOHNS HOPKINS UNIV	Mellott, M. M.	HQ-ES	Meng, C. I.	NAGW 1369	3255
13	JOHNS HOPKINS UNIV	Ahluwalia, H. S.	HQ-EZ	Rust, D. M.	NAGW 522	3246
13	JOHNS HOPKINS UNIV	Stachnik, R. V.	HQ-EZ	Krolik, J. H.	NAGW 1017	3253
13	JOHNS HOPKINS UNIV	Owens, F. C.	HQ-LE	Davidsen, A. F.	NGT 00-050-033	3266
13	KENT STATE UNIV-KENT	Aron, P. R.	LERC	Aburto, C. V.	NAG 3-756	4617
13	KENT STATE UNIV-KENT	Aron, P. R.	LERC	Aburto, C. V.	NAG 3-838	4618
13	LEHIGH UNIVERSITY	Pitich, N. D.	LERC	Thompson, E. D.	NAG 3-709	4853
13	LA ST U&A&M COL-BRGE	Mellott, M. M.	HQ-ES	Wefel, J. P.	NAGW 1027	3185
13	LA ST U&A&M COL-BRGE	Mellott, M. M.	HQ-ES	Jones, W. V.	NAGW 1247	3186
13	MASS INST OF TECH	Kaiser, M. L.	GSFC	Staelin, D. H.	NAG 5-537	3526
13	MASS INST OF TECH	Benson, R. F.	GSFC	Lee, M. C.	NAG 5-1055	3539
13	MASS INST OF TECH	Mather, J.	GSFC	Weiss, R.	NAS 5-27591	3593
13	MASS INST OF TECH	Chang, F.	JSC	Yan, T. F.	NAS 9-17377	3604
13	MASS INST OF TECH	Kolecki, J. C.	LERC	Hastings, D. E.	NAG 3-681	3508
13	MASS INST OF TECH	Kolecki, J. C.	LERC	Sanchez, M. M.	NAS 3-24649	3590
13	MASS INST OF TECH	Mellott, M. M.	HQ-EE	Lazarus, A. J.	NGL 22-009-015	3612
13	MASS INST OF TECH	Mellott, M. M.	HQ-ES	Joss, P. C.	NAGW 1320	3584
13	MASS INST OF TECH	Owens, F. C.	HQ-XE	Binzel, R.	NGT 00-050-323	3627
13	MASS INST OF TECH	Owens, F. C.	HQ-LE	Meyer, S.	NGT 00-050-039	3618
13	MASS INST OF TECH	Owens, F. C.	HQ-LE	Jordan, T. H.	NGT 00-050-045	3619
13	MASS INST OF TECH	Owens, F. C.	HQ-LE	Jordan, T. H.	NGT 00-050-101	3621
13	MASS INST OF TECH	Owens, F. C.	HQ-LE	Solomon, S. C.	NGT 00-050-103	3622
13	MIAMI UNIVERSITY	De Young, R. J.	LARC	Wells, W.	NCC 1-113	4623
13	MIAMI UNIVERSITY	Leonard, R. F.	LERC	Julian, G. M.	NAG 3-847	4621
13	MIAMI UNIVERSITY	Owens, F. C.	HQ-XE	Wells, W.	NGT 00-070-097	4624
13	MICHIGAN STATE UNIV	Gaier, J.	LERC	Solin, S. A.	NAG 3-595	3693
13	MICHIGAN STATE UNIV	Power, J. L.	LERC	Smussen, J. A.	NAG 3-760	3695
13	NEW MEX ST U-LAS CR	Early, L. J.	GSFC	Golden, R. L.	NAG 5-638	4075
13	NEW MEX ST U-LAS CR	Ormes, J. A.	GSFC	Golden, R. L.	NAS 5-30125	4088
13	NEW MEX ST U-LAS CR	Mellott, M. M.	HQ-ES	Golden, R. L.	NAGW 1418	4080
13	NORFOLK STATE UNIV	Barnes, J. C.	LARC	Miller, G. E.	NAG 1-845	5529
13	NORFOLK STATE UNIV	Long, S. T.	LARC	Ferguson, M. W.	NCC 1-115	5530
13	NO CAR A&T STATE U	Magee, C. J.	LARC	Gilchrist, J.	NAG 1-414	4418
13	NO CAR A&T STATE U	Hoell, J. M.	LARC	Yu, C.	NAG 1-815	4421
13	NO CAROLINA STATE U	Jones, F. C.	GSFC	Ellison, D. C.	NAG 5-1042	4442
13	NO CAROLINA STATE U	Long, E. R., Jr.	LARC	Gorta, R.	NSG 1562	4462
13	NORTHEASTERN UNIV	Grimaud, J. E.	JSC	Willey, R. J.	NAG 9-260	3647
13	NORTHEASTERN UNIV	Stearns, C. A.	LERC	Vittoria, C.	NAG 3-745	3646
13	NORTHWESTERN UNIV	Bunner, A. N.	HQ-EZ	Taam, R. E.	NAGW 768	2837
13	OBERLIN COLLEGE	Alterovitz, S.	LERC	Scotfield, J. H.	NAG 3-885	4625
13	OHIO STATE UNIV	Chackerian, C.	ARC	Rao, K. N.	NCA 2-154	4665
13	OHIO STATE UNIV	Marsh, J. G.	GSFC	Rapp, R. H.	NAG 5-781	4649
13	OHIO STATE UNIV	Mantieniaks, M. A.	LERC	York, T. M.	NAG 3-843	4643
13	OHIO STATE UNIV	Baumbick, R. J.	LERC	Collins, S. A., Jr.	NSG 3302	4678
13	OKLAHOMA STATE UNIV	Brockman, P.	LARC	Powell, R. C.	NAG 1-694	4781
13	OKLAHOMA STATE UNIV	Owens, F. C.	HQ-XE	Martin, J. J.	NGT 00-070-092	4784
13	OLD DOMINION UNIV	Byvik, C. E.	LARC	Swetits, J. J.	NAG 1-704	5550

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	OLD DOMINION UNIV	Costen, R. C.	LARC	Heinbockel, J. H.	NAG 1-757	5557
13	OLD DOMINION UNIV	Byvik, C. E.	LARC	Albin, S.	NAG 1-791	5559
13	OLD DOMINION UNIV	Townsend, L. W.	LARC	Khandelwal, G. S.	NCC 1-42	5574
13	OLD DOMINION UNIV	Long, S. T.	LARC	Harries, W. L.	NCC 1-90	5576
13	OLD DOMINION UNIV	Melfi, L. T., Jr.	LARC	Brock, F. J.	NCC 1-94	5577
13	OLD DOMINION UNIV	Jalufka, N. W.	LARC	Harries, W. L.	NSG 1568	5596
13	OLD DOMINION UNIV	Owens, F. C.	HQ-LE	Khandelwal, G. S.	NGT 47-003-803	5593
13	PENN STATE U-UNIV PK	Theiss, H. L.	HQ-EE	Nisbet, J. S.	NGL 39-009-003	4923
13	PITZER COL	Mellott, M. M.	HQ-ES	Higdon, J. C.	NAGW 1297	1570
13	POLY INST OF NY	Benson, R. F.	GSFC	Kuo, S. P.	NAG 5-1051	4282
13	POLY INST OF NY	Fripp, A. L.	LARC	Schleich, D. M.	NAG 1-888	4281
13	PRAIRIE VIEW A&M U	Parish, R.	JSC	Boyd, R. D.	NAG 9-310	5107
13	PRINCETON UNIVERSITY	Early, L. J.	GSFC	Jenkins, E. B.	NAG 5-616	4029
13	PRINCETON UNIVERSITY	Chai, A. T.	LERC	Saville, D. A.	NAG 3-259	4023
13	PURDUE UNIVERSITY	Jaffe, R. L.	ARC	Grant, E. R.	NAG 2-468	3000
13	PURDUE UNIVERSITY	Curran, F.	LERC	Reifenberger, R.	NAG 3-496	3004
13	RICE UNIVERSITY	Visentine, J. T.	JSC	Smith, K. A.	NAG 9-209	5120
13	RICE UNIVERSITY	Vinas, A. F.	HQ-EE	Dessler, A. J.	NAGW 1151	5125
13	RICE UNIVERSITY	Fitzenreiter, R. J.	HQ-EE	Freeman, J. W.	NGL 44-006-012	5130
13	RICE UNIVERSITY	Vinas, A. F.	HQ-EE	Reiff, P. H.	NGR 44-006-137	5131
13	RICE UNIVERSITY	Mellott, M. M.	HQ-ES	Dessler, A. J.	NAGW 1416	5126
13	RICE UNIVERSITY	Owens, F. C.	HQ-XE	Haymes, R. C.	NGT 00-050-251	5133
13	SAN JOSE STATE UNIV	McKay, C. P.	ARC	Becker, J. F.	NCA 2-218	1595
13	SONOMA STATE UNIV	Owens, F. C.	HQ-XE	Becker, J. F.	NGT 00-070-069	1619
13	GEORGIA INST OF TECH	Hall, J. B.	LARC	Colwell, G. T.	NAG 1-551	2693
13	GEORGIA INST OF TECH	Preisser, J. S.	LARC	Pierce, A. D.	NAG 1-566	2694
13	GEORGIA INST OF TECH	Robertson, J. B.	LARC	Summers, C. J.	NAG 1-586	2695
13	GEORGIA INST OF TECH	Thom, R.	MSFC	Grenga, H. E.	NAS 8-35048	2734
13	GEORGIA INST OF TECH	Desch, M. D.	HQ-ES	Hayes, M. A.	NAGW 1380	2727
13	STANFORD UNIVERSITY	Kittel, P.	ARC	Fairbanks, W. M.	NAG 2-276	1631
13	STANFORD UNIVERSITY	Early, L. J.	GSFC	Timothy, J. G.	NAG 5-622	1643
13	STANFORD UNIVERSITY	Early, L. J.	GSFC	Walker, A. B.	NSG 5131	1787
13	STANFORD UNIVERSITY	Brockman, P.	LARC	Feigelson, R. S.	NAG 1-698	1624
13	STANFORD UNIVERSITY	Barnes, N.	LARC	Byer, R. L.	NAG 1-828	1625
13	STANFORD UNIVERSITY	Byvik, C. E.	LARC	Byer, R. L.	NAG 1-839	1626
13	STANFORD UNIVERSITY	Fripp, A. L.	LARC	Spicer, W. E.	NAG 1-851	1627
13	STANFORD UNIVERSITY	Decker, R.	MSFC	Ereritt, C. W.	NAG 8-26	1647
13	STANFORD UNIVERSITY	Harper, B.	MSFC	Michelson, P. F.	NAG 8-710	1649
13	STANFORD UNIVERSITY	Hill, H.	MSFC	Banks, P. M.	NAS 8-35350	1670
13	STANFORD UNIVERSITY	Ise, R.	MSFC	Mozer, F. S.	NAS 8-36125	1671
13	STANFORD UNIVERSITY	Mahaffy, P.	HQ-EL	Timothy, J. G.	NAGW 1140	1661
13	STANFORD UNIVERSITY	Mellott, M. M.	HQ-ES	Spreiter, J. R.	NAGW 278	1653
13	STANFORD UNIVERSITY	Desch, M. D.	HQ-ES	Peterson, A. M.	NAGW 1108	1660
13	STANFORD UNIVERSITY	Mellott, M. M.	HQ-ES	Helliwell, R. A.	NGL 05-020-008	1764
13	STANFORD UNIVERSITY	Ahluwalia, H. S.	HQ-ES	Sturrock, P. A.	NGL 05-020-272	1767
13	STANFORD UNIVERSITY	Ahluwalia, H. S.	HQ-EZ	Timothy, J. G.	NAGW 540	1656
13	STANFORD UNIVERSITY	Stachnik, R. V.	HQ-EZ	Timothy, J. G.	NASW 4093	1674
13	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Petrocian, V.	NGT 00-050-347	1777
13	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Banks, P.	NGT 00-050-383	1780
13	STANFORD UNIVERSITY	Owens, F. C.	HQ-LE	Timothy, J. G.	NGT 00-050-035	1772
13	STANFORD UNIVERSITY	Wander, S. M.	HQ-RF	Chapman, D. R.	NAGW 965	1658
13	STATE UNIV NY-ALBANY	Fischer, J. R.	GSFC	Das, T. P.	NAG 5-836	4315
13	STATE UNIV NY-ALBANY	Wander, S. M.	HQ-RF	Yu, C. P.	NAGW 966	4321
13	STATE UNIV NY-BUFFAL	Long, S. T.	LARC	Rustgi, M. L.	NAG 1-442	4339
13	STATE UNIV NY-BUFFAL	Long, S. T.	LARC	Rustgi, M. L.	NAG 1-577	4340
13	STATE U NY-STONY BRK	Fimmel, R. O.	ARC	Fox, J. L.	NAG 2-329	4353
13	TEXAS A&M UNIVERSITY	McCoy, J. E.	JSC	Hite, G.	NAG 9-266	5181
13	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Poston, J.	NGT 00-050-380	5208
13	TEXAS CHRISTIAN UNIV	Jalufka, N. W.	LARC	Blount, C. E.	NAG 1-691	5216
13	TOWSON STATE UNIV	Balasubrahmanya, V. K.	GSFC	Huang, J. W.	NAG 5-733	3282

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	TUFTS UNIVERSITY	Bullock, G. D.	GSFC	Lang, K. R.	NAG 5-501	3651
13	TUSKEGEE INSTITUTE	Randall, J. L.	MSFC	Jeelani, S.	NAG 8-68	1054
13	TUSKEGEE INSTITUTE	Randall, J. L.	MSFC	Harris, V. G.	NAG 8-77	1055
13	UNION COLLEGE	Donn, B. D.	GSFC	Peak, D.	NAG 5-938	4387
13	UNIV OF AKRON	Abel, P. B.	LERC	Henriksen, P. N.	NAG 3-813	4701
13	UNIV OF AKRON	Glasgow, T. K.	LERC	Cheung, H. M.	NAG 3-906	4706
13	UNIV ALA-BIRMINGHAM	Szofran, F. R.	MSFC	Andrews, R. N.	NAG 8-685	1066
13	UNIV ALA-BIRMINGHAM	Gillett, F. C.	HQ-EZ	Wdowiak, T. J.	NAGW 749	1068
13	UNIV ALA-BIRMINGHAM	Owens, F. C.	HQ-LE	Agesti, D. G.	NGT 02-002-802	1076
13	UNIV ALA-HUNTSVILLE	Bullock, G. D.	GSFC	Emslie, A. G.	NAG 5-500	1078
13	UNIV ALA-HUNTSVILLE	Curreri, P. A.	MSFC	Wu, M. K.	NAG 8-32	1081
13	UNIV ALA-HUNTSVILLE	Leslie, F.	MSFC	Hung, R. J.	NAG 8-35	1082
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Horwitz, J. L.	NAG 8-54	1085
13	UNIV ALA-HUNTSVILLE	Chappel, C. R.	MSFC	Torbert, R. B.	NAG 8-56	1086
13	UNIV ALA-HUNTSVILLE	Chappel, C. R.	MSFC	Wu, S. T.	NAG 8-58	1087
13	UNIV ALA-HUNTSVILLE	Parnoll, T. A.	MSFC	Gregory, J. C.	NAG 8-65	1090
13	UNIV ALA-HUNTSVILLE	Hagyard, M. J.	MSFC	Wu, S. T.	NAG 8-85	1096
13	UNIV ALA-HUNTSVILLE	Frazier, D. O.	MSFC	Loo, B. H.	NAG 8-89	1098
13	UNIV ALA-HUNTSVILLE	Kroes, R. L.	MSFC	Nyce, T. A.	NAG 8-98	1102
13	UNIV ALA-HUNTSVILLE	Eskridge, R. H.	MSFC	Hung, R. J.	NAG 8-102	1104
13	UNIV ALA-HUNTSVILLE	Howell, J. T.	MSFC	Greene, M. E.	NAG 8-587	1110
13	UNIV ALA-HUNTSVILLE	Roberts, W. T.	MSFC	Wu, S. T.	NAG 8-682	1118
13	UNIV ALA-HUNTSVILLE	Bass, B. G.	MSFC	Rosenberger, F.	NAG 8-684	1119
13	UNIV ALA-HUNTSVILLE	Chandler, M. O.	MSFC	Cornfort, R. H.	NAG 8-692	1121
13	UNIV ALA-HUNTSVILLE	Szofran, F. S.	MSFC	Cheng, H. Y.	NAS 8-34957	1144
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Takahashi, Y.	NAS 8-35354	1145
13	UNIV ALA-HUNTSVILLE	Lee, J. E.	MSFC	Workman, G. L.	NAS 8-36485	1152
13	UNIV ALA-HUNTSVILLE	Fields, S. A.	MSFC	Torbert, R. B.	NAS 8-37348	1162
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J.	NAS 8-37751	1164
13	UNIV ALA-HUNTSVILLE	Theis, R. F.	HQ-EE	Torr, D. G.	NAGW 922	1135
13	UNIV ALA-HUNTSVILLE	Ahluwalia, H. S.	HQ-ES	Wu, S. T.	NAGW 9	1131
13	UNIV ALA-HUNTSVILLE	Ahluwalia, H. S.	HQ-ES	Emslie, A. G.	NAGW 294	1132
13	UNIV ALA-HUNTSVILLE	Mellott, M. M.	HQ-ES	Richards, P. G.	NAGW 996	1136
13	UNIV ALA-HUNTSVILLE	Owens, F. C.	HQ-XE	Torr, D. G.	NGT 00-050-355	1177
13	UNIV ALA-HUNTSVILLE	Owens, F. C.	HQ-LE	Emslie, A. G.	NGT 00-050-044	1173
13	UNIV ALA-HUNTSVILLE	Owens, F. C.	HQ-LE	Anderson, E. E.	NGT 00-050-124	1174
13	UNIV ALASKA-FAIRBNKS	Ledley, B. G.	GSFC	Hallinan, T. J.	NAG 5-1074	1191
13	UNIV ALASKA-FAIRBNKS	O'brien, J. J.	GSFC	Rees, M. H.	NAS 5-26868	1202
13	UNIV ALASKA-FAIRBNKS	Vinas, A. F.	HQ-EE	Kan, J. R.	NAGW 906	1195
13	UNIV ALASKA-FAIRBNKS	Eastman, T. E.	HQ-EE	Hallinan, T. J.	NAGW 930	1196
13	UNIV ALASKA-FAIRBNKS	Mellott, M. M.	HQ-EE	Kan, J. R.	NAGW 1250	1200
13	UNIV ALASKA-FAIRBNKS	Mellott, M. M.	HQ-ES	Roederer, J. G.	NAGW 1342	1201
13	UNIV OF ARIZONA	Early, L. J.	GSFC	Ksieh, K. C.	NAG 5-625	1292
13	UNIV OF ARIZONA	Early, L. J.	GSFC	Broadfoot, A. L.	NAG 5-637	1293
13	UNIV OF ARIZONA	Balasubrahmanya, V. K.	GSFC	Bowen, T.	NAG 5-831	1296
13	UNIV OF ARIZONA	Ormes, J. A.	GSFC	Bowen, T.	NAG 5-879	1299
13	UNIV OF ARIZONA	O'brien, J. J.	GSFC	Sonett, C. P.	NAS 5-26869	1378
13	UNIV OF ARIZONA	Frederick, J.	MSFC	Ramohalli, K. N.	NAG 8-694	1308
13	UNIV OF ARIZONA	Christian, H. J.	MSFC	Krider, E. P.	NAS 8-36477	1383
13	UNIV OF ARIZONA	Mellot, M. M.	HQ-EE	Hood, L. L.	NAGW 962	1342
13	UNIV OF ARIZONA	Evans, L. G.	HQ-EL	Fan, C. Y.	NAGW 1097	1349
13	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Smith, B. A.	NAGW 1376	1371
13	UNIV OF ARIZONA	Mahaffy, P.	HQ-EL	Broadfoot, A. L.	NASW 4245	1388
13	UNIV OF ARIZONA	Tuyahov, A. J.	HQ-EL	Bier, M.	NSG 7333	1435
13	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Shemansky, D. E.	NGT 00-050-303	1415
13	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Holberg, J. B.	NGT 00-050-305	1416
13	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Low, F.	NGT 00-050-382	1420
13	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Fink, U.	NGT 00-050-027	1401
13	UNIV CALIF-BERKELEY	McCreight, C. R.	ARC	Arens, J. F.	NAG 2-321	1794
13	UNIV CALIF-BERKELEY	Early, L. J.	GSFC	Chakrabarti, S.	NAG 5-646	1812

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	UNIV CALIF-BERKELEY	Acuna, M. H.	GSFC	Lin, R. P.	NAG 5-959	1814
13	UNIV CALIF-BERKELEY	Wainscott, F. H.	GSFC	Mozer, F. S.	NAS 5-26847	1840
13	UNIV CALIF-BERKELEY	Wainscott, F.	GSFC	Lin, R. P.	NAS 5-26855	1841
13	UNIV CALIF-BERKELEY	Wainscott, F.	GSFC	Mozer, F. S.	NAS 5-30241	1847
13	UNIV CALIF-BERKELEY	Browne, I. D.	JSC	Reynolds, J. H.	NAG 9-34	1821
13	UNIV CALIF-BERKELEY	Chai, A. T.	LERC	Concus, P.	NAG 3-146	1802
13	UNIV CALIF-BERKELEY	Alexander, J. A.	HQ-E	McKee, C. F.	NGL 05-003-497	1882
13	UNIV CALIF-BERKELEY	Rummel, J. D.	HQ-EB	Betz, A. L.	NAGW 681	1829
13	UNIV CALIF-BERKELEY	Fox, K.	HQ-EL	De Pater, I.	NAGW 776	1830
13	UNIV CALIF-BERKELEY	Quaide, W.	HQ-EL	Lin, R. P.	NASW 4211	1851
13	UNIV CALIF-BERKELEY	Ahluwalia, H. S.	HQ-ES	Larson, D. E.	NGT 00-050-271	1898
13	UNIV CALIF-BERKELEY	Ahluwalia, H. S.	HQ-EZ	Lin, R. P.	NAGW 516	1826
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Mozer, F. C.	NGT 00-050-178	1895
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Richards, P. L.	NGT 00-050-179	1896
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Lange, A. E.	NGT 00-050-312	1901
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Anderson, K. A.	NGT 00-050-313	1902
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Stark, L.	NGT 00-070-034	1903
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Price, P. B.	NGT 00-050-014	1888
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Betz, A. L.	NGT 00-050-018	1890
13	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Sadoulet, B.	NGT 00-050-022	1891
13	UNIV CALIF-IRVINE	Curtis, S. A.	HQ-ES	Hoven, G. V.	NAGW 93	1951
13	UNIV CALIF-IRVINE	Ahluwalia, H. S.	HQ-EZ	Van Hoven, G.	NSG 7375	1961
13	UNIV CALIF-L ANGELES	Lee, J. M.	ARC	Frederking, T. H.	NAG 2-464	1978
13	UNIV CALIF-L ANGELES	Lee, J. M.	ARC	Frederking, T. H.	NAG 2-516	1984
13	UNIV CALIF-L ANGELES	Curtis, S. A.	GSFC	Russell, C. T.	NAG 5-536	1991
13	UNIV CALIF-L ANGELES	Curtis, S. A.	GSFC	Strongway, R. J.	NAG 5-863	1995
13	UNIV CALIF-L ANGELES	O'brien, J. J.	GSFC	McPherron, R. L.	NAS 5-26852	2035
13	UNIV CALIF-L ANGELES	O'brien, J. J.	GSFC	Ashour-abdalla G, M.	NAS 5-26871	2036
13	UNIV CALIF-L ANGELES	Theis, R. F.	HQ-EE	Scarf, F. L.	NAGW 995	2019
13	UNIV CALIF-L ANGELES	Theis, R. F.	HQ-EE	Omidi, N.	NAGW 1227	2028
13	UNIV CALIF-L ANGELES	Fox, K.	HQ-EL	Luhmann, J. G.	NAGW 1347	2029
13	UNIV CALIF-L ANGELES	Brinton, H. C.	HQ-EL	Luhmann, J. G.	NAGW 1379	2030
13	UNIV CALIF-L ANGELES	Ahluwalia, H. S.	HQ-ES	Ulrich, R.	NAGW 472	2012
13	UNIV CALIF-L ANGELES	Owens, F. C.	HQ-XE	Stenzel, R. L.	NGT 00-050-247	2057
13	UNIV CALIF-L ANGELES	Owens, F. C.	HQ-LE	Wong, A. Y.	NGT 05-006-800	2061
13	UNIV CALIF-SAN DIEGO	O'brien, J. J.	GSFC	Mcllwain, C. E.	NAS 5-26854	2137
13	UNIV CALIF-SAN DIEGO	Vinas, A. F.	HQ-EE	Whipple, E. C.	NAGW 1150	2129
13	UNIV CALIF-SAN DIEGO	Desch, M. D.	HQ-ES	Mcllwain, C. E.	NGL 05-005-007	2149
13	UNIV CALIF-SAN DIEGO	Ahluwalia, H. S.	HQ-ES	Hudson, H. S.	NSG 7161	2161
13	UNIV CALIF-SAN DIEGO	Spicer, D. S.	HQ-EZ	Hudson, H. S.	NAGW 585	2113
13	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Lee, S. H.	NGT 00-050-159	2154
13	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Agnew, D. C.	NGT 00-050-160	2155
13	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Matteson, J. L.	NGT 00-050-175	2157
13	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-LE	Mcllwain, C. E.	NGT 00-050-131	2152
13	UNIV CALIF-SAN FRAN	White, R.	HQ-EB	Benton, E. V.	NAGW 891	2167
13	UNIV CALIF-S BARBARA	Owens, F. C.	HQ-XE	Lubin, P. M.	NGT 00-050-192	2202
13	UNIV CALIF-S CRUZ	Mellott, M. M.	HQ-ES	Woosley, S. E.	NAGW 1273	2209
13	UNIV OF CHICAGO	Fimmel, R. O.	ARC	Simpson, J. A.	NAG 2-380	2844
13	UNIV OF CHICAGO	Wales, R. O.	GSFC	Werdenbock, M. E.	NAG 5-308	2847
13	UNIV OF CHICAGO	Wares, R.	GSFC	Simpson, J. A.	NAS 5-24430	2876
13	UNIV OF CHICAGO	Browne, I. D.	JSC	Smith, J. V.	NAG 9-47	2856
13	UNIV OF CHICAGO	Mellott, M. M.	HQ-ES	Fryxell, B. A.	NAGW 1284	2871
13	UNIV OF CHICAGO	Mellott, M. M.	HQ-ES	Muller, D.	NAGW 1311	2872
13	UNIV OF CHICAGO	Mellott, M. M.	HQ-ES	Meyer, P.	NAGW 1328	2873
13	UNIV OF CHICAGO	Owens, F. C.	HQ-XE	Arbib, M.	NGT 00-050-199	2896
13	UNIV OF CHICAGO	Owens, F. C.	HQ-XE	Clayton, R. N.	NGT 00-050-203	2897
13	UNIV OF CHICAGO	Owens, F. C.	HQ-XE	Turner, M. S.	NGT 00-050-209	2898
13	UNIV OF CHICAGO	Owens, F. C.	HQ-XE	Miller, R. H.	NGT 00-050-348	2900
13	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Simpson, J. A.	NGT 14-020-801	2902
13	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Wiedenbeck, M.	NGT 14-020-802	2903

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Meyer, P.	NGT 14-020-804	2905
13	UNIV OF CINCINNATI	Baumbick, R. J.	LERC	Boyd, J. T.	NAG 3-852	4727
13	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Rottman, G. J.	NAG 5-633	2324
13	UNIV COLORADO-BOLDR	Ormes, J. A.	GSFC	Jordan, S.	NAG 5-960	2338
13	UNIV COLORADO-BOLDR	Alexander, J. K.	HQ-E	Bender, P. L.	NAGW 822	2362
13	UNIV COLORADO-BOLDR	Theis, R. F.	HQ-EE	Dusenberg, P. B.	NAGW 998	2368
13	UNIV COLORADO-BOLDR	Theis, R. F.	HQ-EE	Speiser, T. W.	NAGW 1176	2379
13	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	Esposito, L. W.	NAGW 1440	2391
13	UNIV COLORADO-BOLDR	Mellott, M. M.	HQ-ES	Speiser, T.	NAGW 1054	2370
13	UNIV COLORADO-BOLDR	Ahluwalia, H. S.	HQ-ES	Dulk, G. A.	NSG 7287	2438
13	UNIV COLORADO-BOLDR	Ahluwalia, H.	HQ-EZ	Stencel, R. E.	NAGW 1100	2372
13	UNIV COLORADO-BOLDR	Ahluwalia, H. S.	HQ-EZ	Linsky, J. L.	NGL 06-003-057	2416
13	UNIV COLORADO-BOLDR	Spicer, D. S.	HQ-EZ	Toomre, J.	NSG 7511	2439
13	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Zweibel, E. G.	NGT 00-050-236	2421
13	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Esposito, L.	NGT 00-050-326	2425
13	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-LE	Shull, J. M.	NGT 00-050-043	2418
13	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-LE	Shull, J. M.	NGT 06-003-800	2432
13	UNIV OF DELAWARE	Brinton, H. C.	HQ-EL	Ness, N. F.	NAGW 1437	2492
13	UNIV OF DELAWARE	Mellott, M. M.	HQ-ES	Mullan, D. J.	NAGW 1295	2491
13	UNIV OF DELAWARE	Jones, W. V.	HQ-EZ	Evenson, P.	NAGW 1040	2489
13	UNIV OF DELAWARE	Owens, F. C.	HQ-XE	Evenson, P. A.	NGT 00-050-205	2494
13	UNIV OF DELAWARE	Owens, F. C.	HQ-XE	Matthaeus, W. H.	NGT 00-050-338	2495
13	UNIV OF FLORIDA	Fripp, A. L.	LARC	Anderson, T. J.	NAG 1-609	2624
13	UNIV OF FLORIDA	Deyoung, R. J.	LARC	Chen, K. Y.	NAG 1-737	2627
13	UNIV OF HAWAII-MANOA	Ahluwalia, H. S.	HQ-ES	Lindsey, C.	NAGW 723	2782
13	UNIV OF HAWAII-MANOA	Ahluwalia, H. S.	HQ-ES	Canfield, R. C.	NAGW 864	2785
13	UNIV OF HAWAII-MANOA	Bohlin, J. D.	HQ-ES	Canfield, R. C.	NAGW 1454	2797
13	UNIV OF HAWAII-MANOA	Stachnik, R. V.	HQ-EZ	Hall, D. N.	NAGW 755	2783
13	UNIV OF HAWAII-MANOA	Ahluwalia, H. S.	HQ-EZ	Labonte, B. J.	NSG 7536	2813
13	UNIV HOUSTON-HOUSTON	Santos-mason, B.	JSC	Ignatiev, A.	NAG 9-180	5231
13	UNIV HOUSTON-HOUSTON	Curreri, P. A.	MSFC	Chu, C. W.	NAG 8-51	5228
13	UNIV OF IDAHO	Townsend, L. W.	LARC	Norbury, J. W.	NCC 1-110	2818
13	UNIV ILLINOIS-URBANA	Mirtich, M. J.	LERC	Thornton, J.	NAG 3-591	2935
13	UNIV ILLINOIS-URBANA	Purvis, C. K.	LERC	Kushner, M. J.	NAG 3-741	2937
13	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Lamb, S. A.	NGT 00-070-041	2967
13	UNIV OF IOWA	Wainscott, F.	GSFC	Gurnett, D. A.	NAS 5-26843	3103
13	UNIV OF IOWA	Wainscott, F.	GSFC	Gurnett, D. A.	NAS 5-26857	3104
13	UNIV OF IOWA	O'brien, J. J.	GSFC	Frank, L. A.	NAS 5-27358	3106
13	UNIV OF IOWA	Stich, K.	GSFC	Gurnett, D. A.	NAS 5-30365	3109
13	UNIV OF IOWA	Soutullo, B. C.	MSFC	Frank, L. A.	NAS 8-33770	3111
13	UNIV OF IOWA	Lynch, J. T.	HQ-EE	Calvert, W.	NAGW 256	3091
13	UNIV OF IOWA	Butler, D. M.	HQ-EE	Goertz, C. K.	NAGW 970	3097
13	UNIV OF IOWA	Desch, M. D.	HQ-ES	Spangler, S. R.	NAGW 806	3093
13	UNIV OF IOWA	Desch, M. D.	HQ-ES	Grabbe, C. L.	NAGW 827	3094
13	UNIV OF IOWA	Desch, M. D.	HQ-ES	D'angelo, N.	NAGW 1156	3098
13	UNIV OF IOWA	Desch, M. D.	HQ-ES	Nishikawa, K. I.	NAGW 1239	3101
13	UNIV OF IOWA	Desch, M. D.	HQ-ES	Van Allen, J. A.	NGL 16-001-002	3113
13	UNIV OF IOWA	Desch, M. D.	HQ-ES	Gurnett, D. A.	NGL 16-001-043	3114
13	UNIV OF IOWA	Owens, F. C.	HQ-XE	D'angelo, N.	NGT 00-050-204	3116
13	UNIV OF IOWA	Owens, F. C.	HQ-LE	Gurnett, D. A.	NGT 00-050-034	3115
13	UNIV OF KANSAS	Grier, N. T.	LERC	Armstrong, T. P.	NSG 3290	3159
13	UNIV OF KANSAS	Fitzenreiter, R. J.	HQ-EE	Armstrong, T. P.	NAGW 917	3140
13	UNIV OF KANSAS	Theis, R. F.	HQ-EE	Beard, D. B.	NAGW 1242	3143
13	UNIV OF KANSAS	Mellott, M. M.	HQ-ES	Armstrong, T. P.	NAGW 1357	3146
13	UNIV OF MAINE-ORONO	Owens, F. C.	HQ-LE	Comins, N. F.	NGT 00-050-098	3216
13	UNIV MARYLAND-BALT	Gentry, B.	GSFC	Strow, L. L.	NAG 5-509	3283
13	UNIV MARYLAND-COL PK	Kittel, P.	ARC	Richard, J. P.	NAG 2-270	3296
13	UNIV MARYLAND-COL PK	Early, L. J.	GSFC	Moore, J.	NAG 5-169	3300
13	UNIV MARYLAND-COL PK	Hoffman, R. A.	GSFC	Coplan, M. A.	NAG 5-422	3310
13	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NAG 5-579	3316

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	UNIV MARYLAND-COL PK	Curtis, S.	GSFC	Gloeckner, S.	NAG 5-716	3318
13	UNIV MARYLAND-COL PK	O'Brien, J. J.	GSFC	Gloeckler, G.	NAS 5-26856	3371
13	UNIV MARYLAND-COL PK	O'Brien, J. J.	GSFC	Papadopoulos, K.	NAS 5-26870	3372
13	UNIV MARYLAND-COL PK	Heaps, W. S.	GSFC	McIlrath, T. J.	NSG 5313	3414
13	UNIV MARYLAND-COL PK	Lauver, R. W.	LERC	Gammon, R. W.	NAG 3-849	3299
13	UNIV MARYLAND-COL PK	Morgan, S. H.	MSFC	Paik, H. J.	NAS 8-36165	3376
13	UNIV MARYLAND-COL PK	Alexander, J. K.	HQ-E	Richard, J. P.	NAGW 1003	3362
13	UNIV MARYLAND-COL PK	Butler, D. M.	HQ-EE	Wu, C. S.	NAGW 971	3361
13	UNIV MARYLAND-COL PK	Ahluwalia, H. S.	HQ-ES	Finn, J. M.	NAGW 1346	3370
13	UNIV MARYLAND-COL PK	Ahluwalia, H. S.	HQ-EZ	Gloeckler, G.	NAGW 101	3353
13	UNIV MARYLAND-COL PK	Ahluwalia, H. S.	HQ-EZ	Kundu, M. R.	NGR 21-002-199	3393
13	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Goodman, J.	NGT 00-050-150	3400
13	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Ramaty, R.	NGT 00-050-328	3403
13	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-LB	Yodh, G.	NGT 21-002-818	3406
13	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-LE	Ramaty, R.	NGT 00-050-055	3397
13	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-LE	Davis, C. C.	NGT 00-050-056	3398
13	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-LE	Ipavich, F. M.	NGT 21-002-820	3408
13	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-LE	Boldt, E.	NGT 21-002-821	3409
13	UNIV OF MASS-AMHERST	Scargie, J.	ARC	Strom, S. E.	NAG 2-344	3652
13	UNIV OF MASS-AMHERST	Owens, F. C.	HQ-LE	Irvine, W. M.	NGT 00-070-009	3672
13	UNIV MICH-ANN ARBOR	Early, L. J.	GSFC	Sharp, W. E.	NGR 23-005-360	3790
13	UNIV MICH-ANN ARBOR	Maddrea, G. L.	LARC	Hays, P. B.	NAG 1-817	3715
13	UNIV MICH-ANN ARBOR	Brinton, H. C.	HQ-EL	Nagy, A. F.	NAGW 1409	3765
13	UNIV MICH-ANN ARBOR	Mellott, M. M.	HQ-ES	Hays, P. B.	NAGW 496	3753
13	UNIV MICH-ANN ARBOR	Mellott, M. M.	HQ-ES	Tarle, G.	NAGW 1296	3761
13	UNIV MICH-ANN ARBOR	Mellott, M. M.	HQ-ES	Nagy, A. F.	NGR 23-005-015	3788
13	UNIV MICH-ANN ARBOR	Mellott, M. M.	HQ-ES	Samir, U.	NGR 23-005-320	3789
13	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Killeen, T. L.	NGT 00-050-193	3796
13	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Gombosi, T. I.	NGT 00-050-368	3799
13	U MINN-MNPLS-ST PAUL	Early, L. J.	GSFC	Cahill, L. J.	NAG 6-11	3825
13	U MINN-MNPLS-ST PAUL	Early, L. J.	GSFC	Winckler, J. R.	NSG 5088	3853
13	U MINN-MNPLS-ST PAUL	Early, L. J.	GSFC	Kellogg, P. J.	NSG 5373	3854
13	U MINN-MNPLS-ST PAUL	Choo, Y. K.	LERC	Patankar, S. V.	NAG 3-596	3817
13	U MINN-MNPLS-ST PAUL	Dudenhoefer, J.	LERC	Simon, T. W.	NAG 3-598	3818
13	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-XE	Mauersberger, K.	NGT 00-050-238	3847
13	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-LE	Winckler, J. R.	NGT 00-050-009	3844
13	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-LE	Pepin, R. O.	NGT 24-001-801	3849
13	UNIV MO-ROLLA	Preisser, J. S.	LARC	Eversman, W.	NAG 1-814	3883
13	UNIV MO-ROLLA	Fogle, V.	MSFC	Day, D. E.	NAS 8-34758	3886
13	UNIV NEBRASKA-LINCLN	Pouch, J. J.	LERC	Woollam, J. A.	NAG 3-154	3939
13	UNIV NEBRASKA-LINCLN	Warner, J. D.	LERC	Woollam, J. A.	NAG 3-866	3941
13	UNIV NEW HAMP-DURHAM	Wilson, R. B.	MSFC	Ryan, J. M.	NCC 8-5	4004
13	UNIV NEW HAMP-DURHAM	Butler, D. M.	HQ-EE	Fisk, L. A.	NAGW 76	3992
13	UNIV NEW HAMP-DURHAM	Ahluwalia, H. S.	HQ-EZ	Chupp, E. L.	NAGW 534	3994
13	UNIV NEW HAMP-DURHAM	Ahluwalia, H. S.	HQ-EZ	Hollweg, J.	NSG 7411	4010
13	UNIV NEW HAMP-DURHAM	Owens, F. C.	HQ-XE	Arnoldy, R. L.	NGT 00-050-299	4008
13	UNIV NEW HAMP-DURHAM	Owens, F. C.	HQ-LE	Hollweg, J. V.	NGT 29-004-800	4009
13	UNIV OF NEW MEXICO	Baker, D. N.	GSFC	Burns, J. O.	NAG 5-1026	4096
13	UNIV OF NEW ORLEANS	Hollenbach, D. J.	ARC	Seab, C. G.	NCA 2-320	3208
13	UNIV N CAR-CHARLOTTE	Vranish, J. M.	GSFC	De Hoff, P. H.	NAG 5-1053	4471
13	UNIV N CAR-CHPL HILL	Owens, F. C.	HQ-XE	Christiansen, W.	NGT 00-050-337	4468
13	UNIV OREGON-EUGENE	Goebel, J. H.	ARC	Radostitz, J. V.	NCA 2-195	4820
13	UNIV OREGON-EUGENE	Nolt, I. G.	LARC	Radostitz, J. V.	NAG 1-813	4817
13	UNIV OF PITTSBURGH	Early, L. J.	GSFC	Zipf, E. C.	NAG 5-609	4956
13	UNIV OF PITTSBURGH	Powell, J. A.	LERC	Choyke, W. J.	NAG 3-603	4953
13	UNIV OF RHODE ISLAND	Zuckerwar, A. J.	LARC	Cuomo, F. W.	NAG 1-519	5000
13	UNIV OF ROCHESTER	Ahluwalia, H. S.	HQ-EZ	Thomas, J. H.	NSG 7562	4394
13	UNIV SAN FRANCISCO	Connolly, J. P.	ARC	Benton, E. V.	NCC 2-521	2238
13	UNIV SAN FRANCISCO	Nachtwey, D. S.	JSC	Benton, E. V.	NAG 9-235	2235
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, E. V.	NAG 8-71	2234

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-34340	2236
13	UNIV OF SOUTHERN CAL	Fimmel, R. O.	ARC	Judge, D.	NAG 2-146	2254
13	UNIV OF SOUTHERN CAL	Early, L. J.	GSFC	Judge, D. L.	NSG 5108	2273
13	UNIV OF SOUTHERN CAL	Quaide, W. L.	HQ-EL	Dabrowski, A. J.	NASW 4202	2264
13	UNIV OF SOUTHERN CAL	Ahluwalia, H. S.	HQ-ES	Rhodes, E. J.	NAGW 13	2257
13	UNIV TENNESSEE-KNOXV	Piltch, N. D.	LERC	Lewis, J. W.	NAG 3-682	5059
13	UNIV TEXAS-AUSTIN	McCreight, C. R.	ARC	Bash, F. N.	NAG 2-402	5284
13	UNIV TEXAS-AUSTIN	Chapman, G. T.	ARC	Swinney, H. L.	NCA 2-207	5342
13	UNIV TEXAS-AUSTIN	Chapman, G. T.	ARC	Swinney, H. L.	NCA 2-781401	5344
13	UNIV TEXAS-AUSTIN	Early, L. J.	GSFC	Opal, C. B.	NAG 5-628	5293
13	UNIV TEXAS-AUSTIN	Christodoulidis, D. C.	GSFC	Tapley, B. D.	NAG 5-746	5294
13	UNIV TEXAS-AUSTIN	Preisser, J. S.	LARC	Blackstock, D. T.	NAS 1-17802	5325
13	UNIV TEXAS-AUSTIN	Rosendhal, J. D.	HQ-E	Tajima, T.	NAGW 846	5320
13	UNIV TEXAS-AUSTIN	Ahluwalia, H. S.	HQ-ES	Steinolfson, R. S.	NAGW 1324	5323
13	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Evans, N. J.	NGT 00-050-320	5357
13	UNIV TEXAS-AUSTIN	Wander, S. M.	HQ-RF	Bertin, J. J.	NAGW 964	5321
13	UNIV TEXAS-DALLAS	Adkins, R. E.	GSFC	Hanson, W. B.	NAS 5-25310	5382
13	UNIV TEXAS-DALLAS	Gustafson, J. C.	LARC	Hoffman, J. H.	NCC 1-119	5387
13	UNIV TEXAS-DALLAS	Waite, J. H.	MSFC	Hoffman, J. H.	NAG 8-80	5371
13	UNIV TEXAS-DALLAS	Fields, S. A.	MSFC	Hoffman, J. H.	NAG 8-616	5372
13	UNIV TEXAS-DALLAS	Moore, T. E.	MSFC	Heelis, R. A.	NAG 8-623	5373
13	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hoffman, J. H.	NAG 8-688	5374
13	UNIV TEXAS-DALLAS	Mellott, M. M.	HQ-ES	Heikkila, W. J.	NAGW 935	5377
13	UNIV TEXAS-DALLAS	Mellott, M. M.	HQ-ES	Heikkila, W. J.	NAGW 957	5378
13	UNIV TEXAS-DALLAS	Owens, F. C.	HQ-LB	Hanson, W.	NGT 44-013-800	5390
13	U TEX HLTH SC CTR-DA	Owens, F. C.	HQ-LE	Templeton, G. H.	NGT 44-080-800	5417
13	UNIV TEXAS-S ANTONIO	Theis, R. F.	HQ-EE	Saflekos, N. A.	NAGW 1254	5430
13	UNIV OF UTAH	Kourtidis, D. A.	ARC	Bascom, W.	NAG 2-444	5439
13	UNIV OF VIRGINIA	Mellott, M. M.	HQ-ES	Chevalier, R. A.	NAGW 764	5627
13	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Dorning, J. J.	NGT 00-050-183	5642
13	UNIV OF WASHINGTON	Early, L. J.	GSFC	Holzworth, R. H.	NAG 5-604	5742
13	UNIV OF WASHINGTON	Early, L. J.	GSFC	Holzworth, R. H.	NAG 5-635	5743
13	UNIV OF WASHINGTON	O'brien, J. J.	GSFC	Parks, G. K.	NAS 5-26850	5790
13	UNIV OF WASHINGTON	Deyoung, R. J.	LARC	Christiansen, W. H.	NAG 1-176	5730
13	UNIV OF WASHINGTON	Theis, R. F.	HQ-EE	Holzworth, R. H.	NAGW 1218	5779
13	UNIV OF WASHINGTON	Ahluwalia, H. S.	HQ-ES	Massey, R. D.	NGT 00-050-283	5799
13	UNIV OF WASHINGTON	Owens, F. C.	HQ-LE	Parks, G. K.	NGT 00-050-023	5797
13	UNIV WISC-MADISON	Glasser, C. A.	GSFC	McCammon, D.	NAG 5-594	5850
13	UNIV WISC-MADISON	Early, L. J.	GSFC	McCammon, D.	NAG 5-629	5851
13	UNIV WISC-MADISON	Early, L. J.	GSFC	Nordsieck, K. H.	NAG 5-647	5852
13	UNIV WISC-MADISON	Dipirro, M. J.	GSFC	Van Sciver, S. W.	NAG 5-1031	5859
13	UNIV WISC-MADISON	Leckrone, D. S.	GSFC	Lawler, J. E.	NAG 5-1048	5860
13	UNIV WISC-MADISON	Mellott, M. M.	HQ-ES	Hershkowitz, N.	NAGW 905	5873
13	UTAH STATE UNIV	Early, L. J.	GSFC	Baker, K. D.	NAG 5-603	5453
13	UTAH STATE UNIV	Early, L. J.	GSFC	Raitt, W. J.	NAG 5-607	5454
13	VANDERBILT UNIVERSTY	Carruth, M. R.	MSFC	Albridge, R. G.	NAS 8-37744	5085
13	VANDERBILT UNIVERSTY	Owens, F. C.	HQ-LE	Haglund, R. F.	NGT 00-050-126	5088
13	VANDERBILT UNIVERSTY	Owens, F. C.	HQ-LE	Tolk, N. H.	NGT 00-050-132	5089
13	COLLEGE OF WM & MARY	Smith, M. A.	LARC	Benner, D. C.	NCC 1-80	5494
13	VIRGINIA POLY INST	Brockman, P.	LARC	Claus, R. O.	NAG 1-831	5683
13	VIRGINIA STATE UNIV	Brockman, P.	LARC	Henderson, G. W.	NAG 1-743	5725
13	WASHINGTON ST UNIV	Townsend, L. W.	LARC	Norbury, J. W.	NAG 1-797	5809
13	WASHINGTON UNIVERSTY	Madaras, E. T.	LARC	Miller, J. G.	NSG 1601	3923
13	WASHINGTON UNIVERSTY	Richman, J. G.	HQ-EE	Walker, R. M.	NGT 00-050-024	3913
13	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Israel, M. H.	NGT 00-050-182	3917
13	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Hohenberg, C. M.	NGT 00-050-194	3918
13	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-LB	Miller, J. G.	NGT 26-010-800	3921
13	WITTENBERG UNIV	Schwarze, G. E.	LERC	Frasca, A. J.	NAG 3-793	4776
13	YALE UNIVERSITY	Owens, F. C.	HQ-XE	Field, R. J.	NGT 00-050-284	2474
19	ALABAMA A&M UNIV	Ruff, R.	MSFC	Lal, R. B.	NAS 8-32945	1014

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
19	ALABAMA A&M UNIV	Foster, C.	MSFC	McGuire, S. Y.	NAS 8-36277	1015
19	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Holloway, J. R.	NAGW 1456	1248
19	ATLANTA UNIVERSITY	Charleston, J. A.	LERC	Reed, J. L.	NAG 3-113	2685
19	AUBURN UNIV-AUBURN	Gulino, D. A.	LERC	Tatarchuk, B. J.	NCC 3-83	1037
19	AUBURN UNIV-AUBURN	Nunes, A.	MSFC	Jemian, W. A.	NAS 8-37232	1036
19	BAYLOR UNIVERSITY	Evans, L. G.	HQ-EL	Alexander, W. M.	NAGW 1282	5094
19	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Rutherford, M. J.	NAGW 1393	4988
19	CALIF INST OF TECH	Bullock, G. D.	GSFC	Martin, S. F.	NAG 5-766	1461
19	CALIF INST OF TECH	Bullock, G. D.	GSFC	Huford, G.	NAG 5-946	1466
19	CALIF INST OF TECH	Browne, I. D.	JSC	Stolper, E.	NAG 9-105	1477
19	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Stevenson, D. J.	NAGW 1213	1490
19	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Ingersoll, A. P.	NAGW 1219	1491
19	CALIF INST OF TECH	Boyce, J. M.	HQ-EL	Stolper, E. M.	NAGW 1427	1495
19	CALIF INST OF TECH	Vescelus, F.	HQ-EL	Muhleman, D. O.	NASW 3983	1505
19	CASE WESTERN RESERVE	Stearns, C. A.	LERC	Vedula, K.	NCC 3-43	4542
19	CASE WESTERN RESERVE	Stearns, C. A.	LERC	Pirouz, P.	NCC 3-73	4546
19	CASE WESTERN RESERVE	Decker, A. J.	LERC	Haacke, E. M.	NCC 3-103	4555
19	CHRISTPHR NEWPRT COL	Wilson, J. W.	LARC	Chang, C. K.	NSG 1614	5478
19	COLUMBIA UNIVERSITY	Rubessin, M. W.	ARC	Helfand, D. J.	NCA 2-133	4169
19	COLUMBIA UNIVERSITY	Rubessin, M. W.	ARC	Prendergast, K.	NCA 2-294	4170
19	COLUMBIA UNIVERSITY	Travis, L.	GSFC	Levenson, R.	NAS 5-29172	4168
19	COLUMBIA UNIVERSITY	Green, S.	GSFC	Flynn, S.	NCC 5-28	4173
19	CORNELL UNIVERSITY	Early, L. J.	GSFC	Kelley, M. C.	NSG 6020	4256
19	CORNELL UNIVERSITY	Quaide, W.	HQ-EL	Squyres, S. W.	NAGW 1199	4219
19	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Nicholson, P. D.	NAGW 1200	4220
19	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Thomas, P.	NAGW 1201	4221
19	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Bird, J. M.	NGT 00-050-211	4243
19	DEPAUL UNIVERSITY	Goldstein, S. H.	JSC	Nerheim, R.	NAG 9-313	2820
19	DARTMOUTH COLLEGE	Bullock, G. D.	GSFC	Hudson, M.	NAG 5-718	3973
19	DRAKE UNIVERSITY	Fowlis, W. W.	MSFC	Kopicky, K. J.	NAS 8-33728	3054
19	DREXEL UNIVERSITY	Clark, I. O.	LARC	Bose, S. M.	NAG 1-708	4840
19	DUKE UNIVERSITY	Owens, F. C.	HQ-LE	De Lucia, F. C.	NGT 00-050-046	4406
19	FLORIDA STATE UNIV	Oseroff, H.	GSFC	Smith, E. A.	NAG 5-849	2601
19	FLORIDA STATE UNIV	Miller, T. L.	MSFC	Barcilon, A.	NAG 8-75	2604
19	GEORGE WASHINGTON U	Crouch, R. K.	LARC	Dressler, R. F.	NAG 1-325	2521
19	INDIANA U-BLOOMINGTN	Trombka, J. L.	GSFC	Friesel, D.	NAG 5-721	2980
19	IOWA STATE UNIV	Smith, B. F.	ARC	Iverson, J. D.	NAG 2-151	3058
19	IOWA STATE UNIV	Pollack, J. B.	ARC	Richardson, S. M.	NCC 2-174	3076
19	JOHNS HOPKINS UNIV	Bullock, S. D.	GSFC	Rosner, R.	NAG 5-774	3237
19	JOHNS HOPKINS UNIV	Bullock, G. D.	GSFC	Decken, R. B.	NAG 5-782	3238
19	JOHNS HOPKINS UNIV	Wainscott, F.	GSFC	Feldman, P. D.	NAS 5-26848	3257
19	LA ST U&A&M COL-BRGE	Stetina, F. L.	GSFC	Hill, M.	NAS 5-30123	3190
19	MASS INST OF TECH	Gillespie, C. M., Jr.	ARC	Elliot, J. L.	NAG 2-257	3495
19	MASS INST OF TECH	Snyder, D. B.	LERC	Hastings, D. E.	NAG 3-695	3509
19	MASS INST OF TECH	Schmerling, E. R.	HQ-E	Young, L. R.	NAGW 1092	3579
19	MASS INST OF TECH	White, R. J.	HQ-EB	Oman, C. M.	NAGW 1377	3586
19	MASS INST OF TECH	Quaide, W. L.	HQ-EL	McNutt, R. L.	NAGW 1209	3582
19	MASS INST OF TECH	Crouch, R. K.	HQ-EL	Gatos, H. C.	NSG 7331	3639
19	MASS INST OF TECH	Owens, F. C.	HQ-XE	Wurtman, R. J.	NGT 00-070-027	3629
19	MIAMI UNIVERSITY	Gonzalez-sanabr, O. D.	LERC	Scott, W. E.	NAG 3-669	4620
19	MICHIGAN STATE UNIV	Nelson, R. F.	GSFC	Bartholic, J.	NAS 5-29334	3701
19	MICHIGAN STATE UNIV	Owens, F. C.	HQ-XE	Poff, K. L.	NGT 00-050-241	3702
19	MIDDLEBURY COLLEGE	Bullock, G. D.	GSFC	Wolfson, R.	NAG 5-762	5467
19	MONTANA STATE UNIV	Goldstein, S. H.	JSC	Geer, R. D.	NAG 9-316	3929
19	NEW MEX ST U-LAS CR	Quaide, W. L.	HQ-EL	Beebe, R.	NAGW 1172	4079
19	NEW MEX ST U-LAS CR	Fox, K.	HQ-EL	Beebe, R.	NAGW 1449	4081
19	NO CAR A&T STATE U	Hoell, J. M.	LARC	Yu, C.	NAG 1-407	4416
19	NO CAROLINA STATE U	Wander, S. M.	HQ-RF	Dejarnette, F. R.	NAGW 1072	4446
19	NORTHEASTERN UNIV	Goldstein, S. H.	JSC	Willey, R. J.	NAG 9-314	3648
19	NORTHWESTERN UNIV	Bullock, G. D.	GSFC	Ulmer, M. P.	NAG 5-933	2833

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
19	OHIO STATE UNIV	Christodoulidis, D. C.	GSFC	Rapp, R. H.	NAG 5-519	4647
19	OHIO STATE UNIV	Bullock, G. D.	GSFC	Mitchell, W. E., Jr.	NAG 5-768	4648
19	OHIO STATE UNIV	Wander, S. M.	HQ-RF	Petrie, S. L.	NAGW 1060	4659
19	OLD DOMINION UNIV	Pittman, J. L.	LARC	Baysal, O.	NAG 1-811	5560
19	OREGON GRADUATE CTR	Wintucky, E. G.	LERC	Swanson, L. W.	NAG 3-434	4791
19	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Carlson, T. N.	NAG 5-919	4889
19	PENN STATE U-UNIV PK	Bullock, G. D.	GSFC	Garmire, G. P.	NAG 5-941	4890
19	PENN STATE U-UNIV PK	Early, L. J.	GSFC	Mitchell, J. D.	NAG 6-7	4892
19	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Carlson, T. N.	NAS 5-30507	4906
19	PENN STATE U-UNIV PK	Early, L. J.	GSFC	Hale, L. C.	NSG 6004	4935
19	PENN STATE U-UNIV PK	Alexander, M. B.	MSFC	Bohren, C. F.	NAS 8-36194	4908
19	PITZER COL	Bullock, G. D.	GSFC	Higdon, J. C.	NAG 5-1011	1569
19	PRINCETON UNIVERSITY	Haynes, D. A.	LARC	Smits, J.	NAG 1-545	4014
19	PRINCETON UNIVERSITY	Owens, F. C.	HQ-XE	Sarmiento, J.	NGT 00-050-243	4052
19	REGIS COLLEGE-MASS	Bullock, G. D.	GSFC	Weimer, D. R.	NAG 5-758	3649
19	RICE UNIVERSITY	Bullock, G. D.	GSFC	Reiff, P.	NAG 5-775	5113
19	ST U NY COL-PLATTSBG	Goldstein, S. H.	JSC	Flynn, G. J.	NAG 9-257	4378
19	SAN JOSE STATE UNIV	Brocker, D. H.	ARC	Goodman, J.	NCC 2-466	1613
19	SAN JOSE STATE UNIV	Dyer, J. W.	ARC	Colin, L.	NCC 2-527	1616
19	STANFORD UNIVERSITY	Bullock, G. D.	GSFC	Helliwell, R. A.	NAG 5-476	1642
19	STANFORD UNIVERSITY	Bullock, G. D.	GSFC	Carpenter, D. L.	NAG 5-884	1644
19	STANFORD UNIVERSITY	Bullock, G. D.	GSFC	Schevyer, P. H.	NAG 5-944	1646
19	TENNESSEE STATE UNIV	Randall, J. L.	MSFC	Chaudhuyi, D. K.	NAG 8-87	5045
19	TEXAS A&M UNIVERSITY	Oran, W.	HQ	Patton, A.	NAGW 1194	5192
19	TEXAS A&M UNIVERSITY	Flinn, E. A.	HQ-EE	Hilde, T. W.	NAGW 1089	5190
19	TEXAS SOUTHERN UNIV	Goldstein, S. H.	JSC	Murty, V. S.	NAG 9-258	5218
19	TRI STATE UNIV	Harrison, J. K.	MSFC	Swenson, F. R.	NAG 8-620	3043
19	TULANE UNIVERSITY	Owens, F. C.	HQ-LE	Walker, B. R.	NGT 00-050-025	3204
19	U CAL-SYS AT BERKLEY	Margolis, M.	HQ-U	Snow, L. N.	NGT 00-090-014	2228
19	UNIV ALA-HUNTSVILLE	Early, L. J.	GSFC	Torbert, R. B.	NAG 5-634	1079
19	UNIV ALA-HUNTSVILLE	Poorman, R. M.	MSFC	Smith, J. E.	NAG 8-708	1125
19	UNIV ALA-HUNTSVILLE	Witherow, W. K.	MSFC	Fredericks, W. J.	NAG 8-733	1130
19	UNIV ALA-HUNTSVILLE	Robinson, M. B.	MSFC	Workman, G. L.	NAS 8-36620	1153
19	UNIV ALA-HUNTSVILLE	Fields, S.	MSFC	Torr, D.	NAS 8-37576	1163
19	UNIV ALA-HUNTSVILLE	Ruff, R. C.	MSFC	Gilbert, J. A.	NCC 8-15	1171
19	UNIV ALASKA-FAIRBNKS	Bullock, G. D.	GSFC	Rees, M. H.	NAG 5-471	1188
19	UNIV ALASKA-FAIRBNKS	Bullock, G. D.	GSFC	Smith, R. W.	NAG 5-747	1189
19	UNIV ALASKA-FAIRBNKS	Hall, D. K.	GSFC	Benson, C. S.	NAG 5-887	1190
19	UNIV ALASKA-FAIRBNKS	Early, L. J.	GSFC	Wescott, E. M.	NAG 6-1	1192
19	UNIV ALASKA-FAIRBNKS	Oseroff, H.	GSFC	McRoy, C.	NAS 5-28769	1204
19	UNIV ALASKA-FAIRBNKS	Vinas, A. F.	HQ-EE	Akasofu, S. I.	NSG 7447	1208
19	UNIV ALASKA-FAIRBNKS	Mellott, M. M.	HQ-ES	Swift, D. W.	NAGW 269	1193
19	UNIV OF ARIZONA	Fimmel, R. O.	ARC	Hunten, D. M.	NAG 2-143	1268
19	UNIV OF ARIZONA	Osecoff, H.	GSFC	Slater, P. N.	NAG 5-859	1297
19	UNIV OF ARIZONA	Oseroff, H.	GSFC	Hutchinson, C. F.	NAG 5-861	1298
19	UNIV OF ARIZONA	Rosendhal, J. D.	HQ-E	Drake, M. J.	NAGW 680	1328
19	UNIV OF ARIZONA	Schmerling, E. R.	HQ-E	Schooley, L. C.	NAGW 1073	1348
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Gehrels, T.	NAGW 1019	1343
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Yelle, R. V.	NAGW 1181	1353
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Shemansky, D. E.	NAGW 1182	1354
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Hood, L. L.	NAGW 1203	1356
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Yelle, R. V.	NAGW 1207	1357
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Sandel, B. R.	NAGW 1208	1358
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Strom, R. G.	NAGW 1212	1359
19	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Sandel, B. R.	NAGW 1214	1360
19	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Teschlea, M. E.	NGT 00-050-274	1413
19	UNIV CALIF-BERKELEY	Kittel, P.	ARC	Lange, A.	NCA 2-240	1864
19	UNIV CALIF-BERKELEY	Smith, B. F.	ARC	Klein, R.	NCA 2-281	1871
19	UNIV CALIF-BERKELEY	Clark, T. A.	GSFC	Welch, W. J.	NAG 5-95	1808
19	UNIV CALIF-BERKELEY	Bullock, G. D.	GSFC	Hurley, K. C.	NAG 5-935	1813

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
19	UNIV CALIF-BERKELEY	Early, L. J.	GSFC	Carlson, C. W.	NAG 6-10	1817
19	UNIV CALIF-BERKELEY	Alexander, J. K.	HQ-E	Saykally, R. J.	NAGW 1022	1833
19	UNIV CALIF-BERKELEY	Evans, L. G.	HQ-EL	Lin, R. P.	NAGW 1240	1834
19	UNIV CALIF-BERKELEY	Mellott, M. M.	HQ-ES	Anderson, K. A.	NGL 05-003-017	1881
19	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Feldman, L. J.	NGT 00-050-293	1900
19	UNIV CALIF-L ANGELES	Des Marais, D. J.	ARC	Schopf, J. W.	NCA 2-33	2041
19	UNIV CALIF-L ANGELES	Young, R. E.	ARC	Schubert, G.	NCA 2-118	2042
19	UNIV CALIF-L ANGELES	Bullock, G. D.	GSFC	Maggs, J. E.	NAG 5-488	1990
19	UNIV CALIF-L ANGELES	Wales, R. O.	GSFC	Russell, C. T.	NAG 5-1067	1999
19	UNIV CALIF-L ANGELES	Weinscott, F. H.	GSFC	Russell, C. T.	NAS 5-26846	2034
19	UNIV CALIF-L ANGELES	Browne, I. D.	JSC	Warren, P. H.	NAG 9-87	2004
19	UNIV CALIF-L ANGELES	Eastman, T. E.	HQ-EE	Ashour Abdalla H, M.	NAGW 1134	2023
19	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Walker, R. J.	NAGW 1179	2024
19	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Siscoe, G. L.	NAGW 1189	2025
19	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Russell, C. T.	NAGW 1190	2026
19	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Barbosa, D. D.	NAGW 1220	2027
19	UNIV CALIF-L ANGELES	Desch, M. D.	HQ-ES	Kennel, C. F.	NGL 05-007-190	2053
19	UNIV CALIF-L ANGELES	Owens, F. C.	HQ-XE	Bird, P.	NGT 00-050-228	2056
19	UNIV CALIF-L ANGELES	Owens, F. C.	HQ-XE	Grindeland, R.	NGT 00-070-025	2058
19	UNIV CALIF-SAN DIEGO	Fimmel, R. O.	ARC	Fillius, W.	NAG 2-153	2078
19	UNIV CALIF-SAN DIEGO	Chapman, G. T.	ARC	Lindenberg, K.	NCA 2-297	2146
19	UNIV CALIF-SAN DIEGO	Bullock, G. D.	GSFC	Lingenfelter, R. E.	NAG 5-945	2090
19	UNIV CALIF-SAN DIEGO	Scudder, J. D.	GSFC	Filius, W. F.	NAG 5-1028	2093
19	UNIV CALIF-SAN DIEGO	Bullock, G. D.	GSFC	Hudson, H.	NAG 5-1071	2094
19	UNIV CALIF-SAN DIEGO	Mellott, M. M.	HQ-ES	Aifven, H.	NSG 7623	2164
19	UNIV CALIF-S CRUZ	Quaide, W. L.	HQ-EL	Lin, D. N.	NAGW 1211	2208
19	UNIV OF CHICAGO	Wales, R. O.	GSFC	Meyer, P.	NAS 5-28500	2877
19	UNIV OF CHICAGO	Quaide, W. L.	HQ-EL	Simpson, J. A.	NASW 3959	2880
19	UNIV OF CHICAGO	Owens, F. C.	HQ-XE	Ziegler, A. M.	NGT 00-050-184	2894
19	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	MacAyeal, D. R.	NGT 00-050-059	2892
19	UNIV OF CINCINNATI	Pouch, J.	LERC	Kapoor, V. J.	NCC 3-33	4732
19	UNIV OF CINCINNATI	Mirtich, M. J.	LERC	Kapoor, V. J.	NCC 3-36	4733
19	UNIV COLORADO-BOLDR	Bullock, G. D.	GSFC	Schrijver, C. J.	NAG 5-932	2335
19	UNIV COLORADO-BOLDR	Bullock, G. D.	GSFC	Gladstone, G. R.	NAG 5-936	2336
19	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Barth, C. A.	NSG 5103	2433
19	UNIV COLORADO-BOLDR	Jalufka, N. W.	LARC	Leone, S. R.	NAG 1-600	2301
19	UNIV COLORADO-BOLDR	Naumann, R. J.	HQ-EN	Kassoy, D. R.	NAGW 951	2367
19	UNIV OF DELAWARE	Oseroff, H.	GSFC	Willmott, C. J.	NAG 5-853	2481
19	UNIV OF DELAWARE	Curtis, H. B.	LERC	Barnett, A. M.	NAG 3-422	2480
19	UNIV OF HAWAII-MANOA	Bullock, G. D.	GSFC	Canfield, R. C.	NAG 5-744	2765
19	UNIV OF HAWAII-MANOA	Bullock, G. D.	GSFC	Canfield, R. G.	NAG 5-1072	2769
19	UNIV OF HAWAII-MANOA	Gooding, J.	JSC	Muenow, D.	NAG 9-153	2773
19	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	Wilson, L.	NAGW 1216	2791
19	UNIV HOUSTON-HOUSTON	Hamilton, D. A.	JSC	Casey, J.	NAG 9-196	5233
19	UNIV HOUSTON-CL LAKE	Atkinson, J. D.	JSC	Miller, W. C.	NAG 9-317	5272
19	UNIV ILLINOIS-URBANA	Early, L. J.	GSFC	Bowhill, S. A.	NGR 14-005-181	2960
19	UNIV OF IOWA	Bullock, G. D.	GSFC	Gurnett, D. A.	NAG 5-310	3086
19	UNIV OF IOWA	Bullock, G. D.	GSFC	Frank, L. A.	NAG 5-483	3087
19	UNIV OF IOWA	Bullock, G. D.	GSFC	Fix, J. D.	NAG 5-805	3089
19	UNIV OF IOWA	Purvis, C. K.	LERC	Kurth, W. S.	NAG 3-449	3083
19	UNIV OF IOWA	Rosendhal, J. D.	HQ-E	Spangler, S. R.	NAGW 831	3095
19	UNIV OF IOWA	Alexander, J. K.	HQ-E	Fix, J. D.	NAGW 871	3096
19	UNIV OF IOWA	Quaide, W. L.	HQ-EL	Neff, J. S.	NAGW 1188	3099
19	UNIV OF IOWA	Quaide, W. L.	HQ-EL	Calvert, W.	NAGW 1206	3100
19	UNIV OF IOWA	Desch, M. D.	HQ-ES	Goertz, C. K.	NSG 7632	3120
19	UNIV MARYLAND-COL PK	Bullock, G. D.	GSFC	Wu, C. S.	NAG 5-454	3311
19	UNIV MARYLAND-COL PK	Oseroff, H.	GSFC	Pinker, R. T.	NAG 5-812	3326
19	UNIV MARYLAND-COL PK	Tanner, R.	GSFC	Adler, I.	NAG 5-924	3336
19	UNIV MARYLAND-COL PK	Bullock, A. D.	GSFC	Goodrich, C. C.	NAG 5-950	3338
19	UNIV MARYLAND-COL PK	Bullock, A. D.	GSFC	Kundu, M. R.	NAG 5-969	3341

**NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
19	UNIV MARYLAND-COL PK	Hoegy, W. R.	GSFC	Greenwood, S. W.	NCC 5-35	3388
19	UNIV MARYLAND-COL PK	Jones, F.	GSFC	Gloeckler, G.	NGR 21-002-316	3395
19	UNIV MARYLAND-COL PK	Sawyer, W. C.	LARC	Anderson, J. D., Jr.	NAG 1-546	3288
19	UNIV MARYLAND-COL PK	Tilford, S. G.	HQ-EE	Ginter, M. L.	NAGW 1326	3369
19	UNIV MARYLAND-COL PK	Mellott, M. M.	HQ-ES	Wu, C. S.	NGL 21-002-005	3390
19	UNIV MICH-ANN ARBOR	Bullock, G. D.	GSFC	Hays, P. B.	NAG 5-465	3733
19	UNIV MICH-ANN ARBOR	Bullock, G. D.	GSFC	Nagy, A. F.	NAG 5-472	3734
19	UNIV MICH-ANN ARBOR	Bullock, G. D.	GSFC	Carignan, G. R.	NAG 5-482	3736
19	UNIV MICH-ANN ARBOR	Brace, L. H.	GSFC	Fontheim, E. G.	NAG 5-844	3741
19	UNIV MICH-ANN ARBOR	Oseroff, H.	GSFC	Dobson, C.	NAG 5-852	3742
19	UNIV MICH-ANN ARBOR	Chai, A. T.	LERC	Yang, W. J.	NAG 3-903	3730
19	U MINN-MNPLS-ST PAUL	Bullock, G. D.	GSFC	Cahill, L. J.	NAG 5-529	3821
19	U MINN-MNPLS-ST PAUL	Scudder, J. D.	GSFC	Kellogg, P. J.	NAG 5-983	3823
19	UNIV MISS-UNIVERSITY	Blakeslee, R.	MSFC	Marshall, T. C.	NAG 8-648	3872
19	UNIV NEW HAMP-DURHAM	Vincent, G. B.	GSFC	Chupp, E. L.	NAG 5-720	3989
19	UNIV NEW HAMP-DURHAM	Early, L. J.	GSFC	Arnoldy, R. L.	NAG 6-12	3990
19	UNIV OF NEW MEXICO	Oseroff, H.	GSFC	Morain, S. A.	NAG 5-851	4095
19	UNIV OF NEW ORLEANS	Wood, G. M., Jr.	LARC	Ioup, G. E.	NAG 1-485	3206
19	UNIV OF NEW ORLEANS	Wood, G. M.	LARC	Ioup, G. E.	NAG 1-804	3207
19	UNIV OKLAHOMA-NORMAN	Oseroff, H.	GSFC	Duchon, C. E.	NAG 5-850	4788
19	UNIV OF PENNSYLVANIA	Owens, F. C.	HQ-LE	Shen, B.	NGT 39-090-800	4951
19	UNIV OF PITTSBURGH	Early, L. J.	GSFC	Zipf, E. C.	NAG 6-2	4957
19	UNIV OF ROCHESTER	Bullock, G. D.	GSFC	Thomas, J. H.	NAG 5-934	4392
19	UNIV OF ROCHESTER	Arrison, A.	LERC	Hall, D. G.	NAG 3-414	4391
19	UNIV OF SANTA CLARA	Whitten, R. C.	ARC	McCormick, P. T.	NCC 2-130	2249
19	UNIV OF SOUTHERN CAL	Wander, S. M.	HQ-RF	Kaplan, R. E.	NAGW 1061	2260
19	UNIV SO MISSISSIPPI	Wood, G. M.	LARC	Rayborn, G. H.	NAG 1-800	3874
19	UNIV TENNESSEE-KNOXV	Esbridge, R.	MSFC	Jeng, S.	NAS 8-36220	5071
19	UNIV TEXAS-AUSTIN	Bullock, G. D.	GSFC	Steinolfson, R. S.	NAG 5-761	5298
19	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Hanson, W.	NAG 5-305	5368
19	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Heelis, R. A.	NAG 5-306	5369
19	UNIV TEXAS-DALLAS	Blanchard, R. C.	LARC	Hoffman, J. H.	NAS 1-17399	5381
19	U TEX MED BRANCH-GAL	Goldstein, S. H.	JSC	Nechay, B. R.	NAG 9-315	5409
19	UNIV OF TOLEDO	Bullock, G. D.	GSFC	Anderson, L. S.	NAG 5-1069	4767
19	UNIV OF TOLEDO	Morren, W. E.	LERC	Dewitt, K. J.	NAG 3-577	4751
19	UNIV OF VIRGINIA	Nuth, J. A.	GSFC	Lilleleht, L. U.	NAG 5-865	5618
19	UNIV OF VIRGINIA	Sachse, G. W.	LARC	Gallagher, T. F.	NAG 1-701	5605
19	UNIV WISC-MADISON	Oseroff, H.	GSFC	Diak, G. R.	NAG 5-854	5857
19	UTAH STATE UNIV	Bullock, G. D.	GSFC	Sojka, J. J.	NAG 5-748	5455
19	UTAH STATE UNIV	Purvis, C. K.	LERC	Raitt, W. J.	NAG 3-792	5452
19	COLLEGE OF WM & MARY	Phillips, D. H.	LARC	Krakauer, H.	NCC 1-77	5493
19	VA MILITARY INST	Browne, I. D.	JSC	Schreider, H. D.	NAG 9-102	5657
19	VIRGINIA STATE UNIV	Wilson, J. W.	LARC	Stronach, C. E.	NAG 1-416	5724
19	VIRGINIA STATE UNIV	Wilson, J. W.	LARC	Stith, J. J.	NAG 1-765	5726
19	WASHINGTON UNIVERSTY	Evans, D.	HQ-EE	Arvidson, R. E.	NASW 4017	3909
19	WASHINGTON UNIVERSTY	Quaide, W. L.	HQ-EL	McKinnon, W. B.	NAGW 1215	3907
19	YALE UNIVERSITY	Stearns, C. A.	LARC	Rosner, D.	NAG 3-884	2462
21	ATLANTA UNIVERSITY	Shoosmith, J. N.	LARC	Mickens, R. E.	NAG 1-410	2683
21	BROWN UNIVERSITY	Armstrong, E. S.	LARC	Banks, H. T.	NAG 1-517	4969
21	BROWN UNIVERSITY	Owens, F. C.	HQ-LE	Su, C. H.	NGT 40-002-801	4996
21	CASE WESTERN RESERVE	Decker, A. J.	LERC	Izen, S. H.	NAG 3-832	4524
21	CLEVELAND STATE UNIV	Owens, F. C.	HQ-XE	Kramerich, G.	NGT 00-070-065	4612
21	CLEVELAND STATE UNIV	Owens, F. C.	HQ-XE	Kramerich, G. L.	NGT 00-070-073	4613
21	COLORADO STATE UNIV	Murphy, J.	ARC	Prenter, P. M.	NCA 2-181	2295
21	DUKE UNIVERSITY	Ford, W. F.	LERC	Smith, D. A.	NSG 3160	4410
21	HAMPTON UNIVERSITY	Smith, R. E.	LARC	Lam, M.	NAG 1-760	5512
21	HAMPTON UNIVERSITY	Hardin, J. C.	LARC	Miamec, A. G.	NAG 1-768	5514
21	HARVEY MUDD COLLEGE	Kehoe, M. W.	ARC	Krieger, H.	NCA 2-292	1563
21	HOWARD UNIVERSITY	Gordon, R. A.	GSFC	Gill, T. L.	NAS 5-30203	2568
21	KANSAS STATE UNIV	Owens, F. C.	HQ-LE	Asrar, G.	NGT 17-002-801	3127

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
21	LA ST U&A&M COL-BRGE	Fox, K.	HQ-EL	Henry, R. J.	NAGW 48	3183
21	MISSISSIPPI STATE U	Smith, R. E., Jr.	LARC	Thompson, J. F.	NSG 1577	3871
21	NORTHWESTERN UNIV	Rummel, J.	HQ-EB	Eirich, F.	NGT 00-050-012	2839
21	OLD DOMINION UNIV	Eckhardt, D. E.	LARC	Lee, L. D.	NAG 1-744	5555
21	OLD DOMINION UNIV	Eckhardt, D. E.	LARC	Lee, L. D.	NAG 1-835	5562
21	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Swuits, J.	NGT 00-050-346	5587
21	SO UNIV & A&M COL-BR	Halpern, R. E.	HQ-SU	Roquiemore, L.	NAGW 701	3197
21	TENNESSEE TECH U	Owens, F. C.	HQ-XE	Patil, S. A.	NGT 00-050-127	5049
21	UNIV ALA-HUNTSVILLE	Black, R. E.	MSFC	Kaukler, W. F.	NAG 8-511	1108
21	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Pearlstein, A. J.	NGT 00-050-307	1417
21	UNIV CALIF-DAVIS	Flores, J.	ARC	Cheer, A. Y.	NCA 2-172	1933
21	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-XE	Lacy, C. E.	NGT 00-050-276	5266
21	UNIV ILLINOIS-URBANA	Murray, N. D.	LARC	Campbell, R. H.	NSG 1471	2969
21	UNIV MARYLAND-COL PK	Celmer, J. J.	GSFC	Chen, J.	NAG 5-1019	3343
21	UNIV MICH-ANN ARBOR	Thomas, J. L.	LARC	Van Leer, B.	NAG 1-869	3716
21	U PUERTO RICO-MAYAGZ	Owens, F. C.	HQ-XE	Smith, R. W.	NGT 00-070-076	5925
21	U PUERTO RICO-MAYAGZ	Owens, F. C.	HQ-XE	Smith, R. W.	NGT 00-070-077	5926
21	UNIV OF WASHINGTON	Yee, H. C.	ARC	Leveque, R. J.	NCA 2-185	5792
21	VANDERBILT UNIVERSTY	Robinson, M. B.	MSFC	Bayuzick, R. J.	NAG 8-536	5082
21	WEST VIRGINIA UNIV	Zorumski, W. E.	LARC	Gingold, H.	NAG 1-741	5822
22	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Saha, H.	NAG 8-24	1002
22	ARIZONA STATE UNIV	Stevens, K. G.	ARC	Tylavsky, D. J.	NCA 2-8	1251
22	ARIZONA STATE UNIV	Stevens, K. G.	ARC	Tylavsky, D.	NCC 2-472	1255
22	ARIZONA STATE UNIV	Quaide, W. L.	HQ-EL	Anderson, D. L.	NASW 4098	1250
22	ATLANTA UNIVERSITY	Owens, F. C.	HQ-LE	Warsi, N. A.	NGT 00-050-106	2687
22	AUBURN UNIV-AUBURN	Wolfsberger, J. W.	MSFC	Brown, D. B.	NCC 8-14	1038
22	BOSTON UNIVERSITY	Tilton, J. C.	GSFC	Woodcock, C. E.	NAG 5-896	3425
22	BOWIE STATE COLLEGE	Kork, J.	GSFC	Bhatia, M. S.	NAG 5-715	3218
22	BOWIE STATE COLLEGE	Truszkowski, W. F.	GSFC	Srivastava, S.	NAS 5-30296	3220
22	BOWIE STATE COLLEGE	Rodriguez, C.	GSFC	Kirksey, C. H.	NCA 5-108	3221
22	BOWIE STATE COLLEGE	Freeman, Y. B.	HQ-U	Kirksey, C. H.	NGT 00-090-016	3223
22	BRIGHAM YOUNG UNIV	Lansing, D. L.	LARC	Stephenson, M. B.	NAG 1-391	5431
22	BROOKLYN COLLEGE	Jacobs, B.	GSFC	Harrow, K.	NAG 5-711	4109
22	CITY U NY-STATEN ISL	Jacobs, B. E.	GSFC	Moroh, M.	NAG 5-763	4120
22	CARNEGIE-MELLON UNIV	Lum, H.	ARC	Casasent, D.	NCA 2-300	4835
22	CARNEGIE-MELLON UNIV	Friedland, P. E.	ARC	Mitchell, T.	NCC 2-463	4836
22	CARNEGIE-MELLON UNIV	Rosenthal, D. A.	ARC	Smith, S. F.	NCC 2-531	4837
22	CARNEGIE-MELLON UNIV	Dorband, J. E.	GSFC	Siewiorek, D. P.	NAG 5-1046	4831
22	CASE WESTERN RESERVE	Winsa, E. A.	LERC	Merat, F. L.	NAG 3-766	4511
22	CASE WESTERN RESERVE	Bobinsky, E. A.	LERC	Sterling, L.	NAG 3-907	4529
22	CATHOLIC UNIVERSITY	Jacobs, B.	GSFC	Welch, J. N.	NAG 5-311	2500
22	CLEMSON UNIV-CLEMSON	Owens, F. C.	HQ-XE	Grist, R. M.	NGT 00-070-028	5021
22	CLEMSON UNIV-CLEMSON	Owens, F. C.	HQ-LE	Geist, R.	NGT 00-050-005	5019
22	CLEMSON UNIV-CLEMSON	Owens, F. C.	HQ-LE	Schalkoff, R. J.	NGT 00-050-090	5020
22	CLEVELAND STATE UNIV	Owens, F. C.	HQ-XE	Anthan, D.	NGT 00-070-083	4614
22	COLORADO STATE UNIV	Bailey, F. R.	ARC	Johnson, G. M.	NCC 2-344	2296
22	COLORADO STATE UNIV	Graves, R. A.	HQ-LE	Burns, P. J.	NGT 06-002-802	2300
22	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Hopcroft, J. E.	NGT 00-050-327	4249
22	DARTMOUTH COLLEGE	Fernquist, A. R.	ARC	Bishop, M. A.	NAG 2-480	3970
22	DUKE UNIVERSITY	Storaasli, O. O.	LARC	Patrick, M. L.	NAG 1-466	4397
22	FOOTHILL-DEANZA SYST	Lum, H.	ARC	Frederick, V.	NCC 2-342	1562
22	FISK UNIVERSITY	Key, C. F.	MSFC	Springer, J. M.	NAS 8-36166	5041
22	GEORGE WASHINGTON U	Truszkowski, W. F.	GSFC	Sibert, J. L.	NAS 5-30092	2538
22	GEORGE WASHINGTON U	Migneault, G. E.	LARC	Miller, D. R.	NAG 1-179	2520
22	HUMBOLDT STATE UNIV	Jones, W. P.	ARC	Blaisdell, J. H.	NCA 2-237	1566
22	IOWA STATE UNIV	Owens, F. C.	HQ-XE	Oldehoeft, A. E.	NGT 00-050-269	3080
22	JACKSON STATE UNIV	Galle, R. A.	NSTL	Leflore, R. M.	NCC13-1	3856
22	LOYOLA COLLEGE	Hoegy, W. R.	GSFC	Marshall, R. G.	NAG 5-893	3273
22	LINCOLN UNIV-PA	Alterescu, S.	GSFC	Frankowsk, J. W.	NAS 5-28566	4862
22	LA ST U&A&M COL-BRGE	Jacobs, B.	GSFC	Iyengar, S. S.	NAG 5-540	3180

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
22	MASS INST OF TECH	Friedland, P. E.	ARC	Sheridan, T.	NCC 2-360	3608
22	NEW MEX ST U-LAS CR	Stevens, K. G.	ARC	Hills, R. G.	NAG 2-474	4074
22	NEW MEX ST U-LAS CR	Lerdal, R.	JSC	Craddock, W.	NAS 9-95618	4089
22	NEW MEX ST U-LAS CR	Owens, F. C.	HQ-XE	McDonald, J.	NGT 00-070-079	4094
22	NO CAR A&T STATE U	Sliwa, N. E.	LARC	Ntuen, C. A.	NAG 1-763	4419
22	NO CAROLINA STATE U	Stevens, K. G.	ARC	Agrawal, D. P.	NAG 2-449	4436
22	NO CAROLINA STATE U	Rogers, J. L.	LARC	Rasdorf, W. J.	NAG 1-604	4429
22	NO CAROLINA STATE U	Eckhardt, D. E., Jr.	LARC	McAllister, D. F.	NAG 1-667	4430
22	NO CAROLINA STATE U	Morris, W. D.	LARC	Bengtson, N. M.	NAG 1-792	4434
22	NO CAROLINA STATE U	Farmer, F. H.	LARC	Rasdorf, W. J.	NAG 1-883	4435
22	NORWITCH UNIVERSITY	Stilwell, D. J.	JSC	Bartram, P. N.	NAG 9-254	5471
22	NORWITCH UNIVERSITY	Stilwell, D.	JSC	Bartram, P. N.	NAG 9-312	5472
22	OHIO STATE UNIV	Owens, F. C.	HQ-LE	Smith, P.	NGT 00-050-078	4673
22	OLD DOMINION UNIV	Eckhardt, D. E., Jr.	LARC	Wild, C. D.	NAG 1-439	5537
22	OLD DOMINION UNIV	Murray, N. D.	LARC	Maly, K.	NAG 1-908	5568
22	OLD DOMINION UNIV	Rehder, J. J.	LARC	Schwing, J. L.	NCC 1-99	5578
22	PENN STATE U-UNIV PK	Campbell, W. J.	GSFC	Peuquet, D. J.	NAG 5-798	4887
22	PENN STATE U-UNIV PK	McDonald, K. R.	GSFC	Peuquet, D. J.	NAG 5-997	4891
22	PURDUE UNIVERSITY	Murray, N. D.	LARC	Bhargava, B.	NAG 1-676	2995
22	RICE UNIVERSITY	Graham, O.	JSC	De Figueiredo, R. J.	NAS 9-17896	5129
22	GEORGIA INST OF TECH	Truskowski, W. F.	GSFC	Mitchell, C. M.	NAG 5-1044	2718
22	GEORGIA INST OF TECH	Truskowski, W. F.	GSFC	Mitchell, C. M.	NAS 5-28575	2733
22	GEORGIA INST OF TECH	Murray, N. D.	LARC	Lablanc, R. J.	NAG 1-430	2692
22	SO UNIV & A&M COL-BR	Wilson, J.	HQ-NI	Roquemore, L.	NGT 19-010-900	3200
22	STANFORD UNIVERSITY	Stevens, K. G., Jr.	ARC	Lundstrom, S. F.	NAG 2-248	1630
22	STANFORD UNIVERSITY	Smith, B.	ARC	Owen Storey, L. R.	NCA 2-144	1687
22	STANFORD UNIVERSITY	Beam, R. M.	ARC	Oliger, J.	NCA 2-150	1689
22	STANFORD UNIVERSITY	Jespersen, D.	ARC	Golub, G.	NCA 2-233	1700
22	STANFORD UNIVERSITY	Friedland, P. E.	ARC	Feigenbaum, E. A.	NCC 2-220	1733
22	STANFORD UNIVERSITY	Friedland, P. E.	ARC	Nilsson, N. J.	NCC 2-494	1752
22	STANFORD UNIVERSITY	Friedland, P. E.	ARC	Leifer, L.	NCC 2-514	1754
22	STANFORD UNIVERSITY	Friedland, P. E.	ARC	Buchanan, B. G.	NCC 2-537	1757
22	STANFORD UNIVERSITY	Spears, J. M.	KSC	Banks, P. M.	NCC10-1	1763
22	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Shortliffe, E.	NGT 00-050-168	1774
22	STANFORD UNIVERSITY	Smith, P. H.	HQ-RC	Banks, P. M.	NAGW 419	1655
22	STATE UNIV NY-BUFFAL	Murray, N. D.	LARC	Wittie, L. D.	NAG 1-249	4338
22	SYRACUSE UNIVERSITY	Sjogren, J. A.	LARC	Goel, A. L.	NAG 1-806	4381
22	UNIV TENNESSEE-CHAT	Weeks, D. J.	MSFC	Bykat, A.	NAG 8-105	5052
22	UNIV ALA-BIRMINGHAM	Owens, F. C.	HQ-LE	McAnulty, M.	NGT 02-002-800	1075
22	UNIV ALA-HUNTSVILLE	Juday, R.	JSC	Duthie, G.	NAS 9-17598	1165
22	UNIV ALA-HUNTSVILLE	Edge, T. M.	MSFC	Olson, L. H.	NAG 8-83	1095
22	UNIV ALA-HUNTSVILLE	Freeman, M. S.	MSFC	Johannes, J. D.	NAG 8-117	1106
22	UNIV ALA-HUNTSVILLE	Weeks, D.	MSFC	Ford, D. R.	NAG 8-642	1116
22	UNIV ALA-HUNTSVILLE	Whitehead, N. D.	MSFC	McKee, J. W.	NAG 8-720	1128
22	UNIV ALA-HUNTSVILLE	Weeks, D.	MSFC	Ford, D.	NAS 8-37332	1161
22	UNIV ALA-HUNTSVILLE	Vinz, F. L.	MSFC	Ranganath, H. S.	NCC 8-16	1172
22	UNIV ALA-HUNTSVILLE	Owens, F. C.	HQ-LE	Rosenberger, F.	NGT 00-050-129	1175
22	UNIV ALA-UNIVERSITY	Haley, A. D.	MSFC	Carroll, C. C.	NAG 8-93	1181
22	UNIV ALA-UNIVERSITY	Thomas, L. D.	MSFC	Yeager, D. P.	NAG 8-718	1184
22	UNIV OF ARIZONA	Friedland, P. E.	ARC	Nunamaker, J. F.	NAG 2-533	1279
22	UNIV OF ARIZONA	Friedland, P. E.	ARC	Zeigler, B. P.	NCC 2-525	1395
22	UNIV CALIF-BERKELEY	Stevens, K. G.	ARC	Smith, A. J.	NCA 2-128	1858
22	UNIV CALIF-BERKELEY	Friedland, P. E.	ARC	Zadeh, L.	NCC 2-275	1877
22	UNIV CALIF-BERKELEY	Stevens, K. G.	ARC	Smith, A. J.	NCC 2-550	1880
22	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Russell, S. J.	NGT 00-050-166	1894
22	UNIV CALIF-IRVINE	Eckhardt, D. E., Jr.	LARC	Leveson, N. G.	NAG 1-668	1945
22	UNIV CALIF-L ANGELES	Eckhardt, D. E., Jr.	LARC	Avizienis, A.	NAG 1-512	1964
22	UNIV CALIF-S BARBARA	Eckhardt, D. E.	LARC	Kelly, J. P.	NAG 1-782	2180
22	UNIV CALIF-S CRUZ	Jones, H. W.	ARC	Levinson, R. A.	NCC 2-438	2222
22	UNIV COLORADO-BOLD	Tong, G. M.	GSFC	Hansen, E. R.	NAS 5-29174	2398

**NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
22	UNIV COLORADO-BOLDR	Schmerling, E.	HQ-EC	Hansen, E. R.	NAGW 1121	2375
22	UNIV COLORADO-BOLDR	Devirian, M.	HQ-EI	Hansen, E.	NASW 3711	2406
22	UNIV DIST COLUMBIA	Margolis, M.	HQ-U	Coleman, W. R.	NGT 05-050-902	2576
22	UNIV OF FLORIDA	Owens, F. C.	HQ-XE	Grams, R.	NGT 00-070-021	2654
22	UNIV OF FLORIDA	Owens, F. C.	HQ-XE	Grams, R.	NGT 00-070-022	2655
22	UNIV HOUSTON-HOUSTON	Jacobs, B. E.	GSFC	Huang, S. S.	NAG 5-739	5227
22	UNIV HOUSTON-HOUSTON	Gilbert, J. R.	JSC	Rusinkiewicz, M. E.	NAG 9-195	5232
22	UNIV HOUSTON-HOUSTON	Heydorn, R.	JSC	Dhawan, A.	NAG 9-203	5235
22	UNIV HOUSTON-HOUSTON	Suddath, J. H.	JSC	Bourgeois, B.	NAG 9-274	5246
22	UNIV HOUSTON-CL LAKE	MacDonald, R. B.	JSC	Dickerson, E. T.	NCC 9-16	5275
22	UNIV ILLINOIS-URBANA	Schulbach, C. H.	ARC	Iyer, R. K.	NCA 2-184	2955
22	UNIV ILLINOIS-URBANA	Grant, T. L.	ARC	Iyer, R. K.	NCA 2-301	2956
22	UNIV ILLINOIS-URBANA	Lum, H.	ARC	Wah, B. W.	NCC 2-481	2958
22	UNIV ILLINOIS-URBANA	Lum, H.	ARC	Kuck, D. J.	NCC 2-559	2959
22	UNIV ILLINOIS-URBANA	Dorband, J.	GSFC	Reed, D.	NAG 5-377	2940
22	UNIV ILLINOIS-URBANA	Smith, K. A.	LARC	Campbell, R. H.	NAG 1-138	2921
22	UNIV ILLINOIS-URBANA	Carreno, V. A.	LARC	Iyer, R. K.	NAG 1-602	2923
22	UNIV ILLINOIS-URBANA	Voigt, S. J.	LARC	Liu, J. W.	NAG 1-613	2924
22	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Wah, B.	NGT 00-050-349	2962
22	UNIV MARYLAND-COL PK	Lum, H.	ARC	Shneiderman, B.	NCC 2-474	3384
22	UNIV MARYLAND-COL PK	Lum, H.	ARC	Agrawala, A. K.	NCC 2-519	3385
22	UNIV MARYLAND-COL PK	Lum, H.	ARC	Davis, L. S.	NCC 2-560	3386
22	UNIV MARYLAND-COL PK	McGarry, F. E.	GSFC	Basili, V. R.	NAG 5-368	3307
22	UNIV MARYLAND-COL PK	Vranish, J. M.	GSFC	Baras, J. S.	NAG 5-1047	3345
22	UNIV MARYLAND-COL PK	Truszkowski, W. F.	GSFC	Roussopoulos, N.	NAS 5-29265	3374
22	UNIV MARYLAND-COL PK	McGarry, F. E.	GSFC	Basili, V. R.	NSG 5123	3412
22	UNIV MARYLAND-COL PK	Sliwa, N. E.	LARC	Reggia, J. A.	NAG 1-885	3295
22	UNIV MICH-ANN ARBOR	Friedland, P. E.	ARC	Volz, R. A.	NAG 2-350	3719
22	UNIV MICH-ANN ARBOR	Friedland, P. E.	ARC	Volz, R. A.	NCC 2-517	3785
22	UNIV MICH-ANN ARBOR	Butler, R. W.	LARC	Shin, K. G.	NAG 1-296	3710
22	UNIV MICH-ANN ARBOR	Butler, R. W.	LARC	Shin, K. G.	NAG 1-492	3711
22	UNIV MICH-ANN ARBOR	Elks, C. R.	LARC	Shin, K. G.	NAG 1-887	3717
22	UNIV OREGON-EUGENE	Remington, R. W.	ARC	Farley, A. M.	NAG 2-383	4818
22	UNIV OF PENNSYLVANIA	Owens, F. C.	HQ-XE	Badler, N.	NGT 00-050-063	4948
22	UNIV OF PENNSYLVANIA	Owens, F. C.	HQ-LE	Finin, T.	NGT 00-050-066	4949
22	UNIV OF RICHMOND	Holloway, C. M.	LARC	Charlesworth, A.	NAG 1-774	5597
22	UNIV OF SANTA CLARA	Yin, J.	ARC	Alkhatib, H.	NCA 2-99	2241
22	UNIV OF SANTA CLARA	Stevens, K.	ARC	Alkhatib, H.	NCA 2-213	2244
22	UNIV OF SANTA CLARA	Yin, J.	ARC	Alkhatib, H.	NCC 2-554	2252
22	UNIV OF SO FLORIDA	Lim, R. S.	ARC	Hall, L. O.	NAG 2-487	2677
22	UNIV OF SOUTHERN CAL	Friedland, P. E.	ARC	Uncapher, K. W.	NAG 2-532	2255
22	UNIV OF SOUTHERN CAL	Friedland, P. E.	ARC	Uncapher, K. W.	NCC 2-520	2267
22	UNIV OF SOUTHERN CAL	Friedland, P.	ARC	Rosenbloom, P.	NCC 2-538	2268
22	UNIV OF SOUTHERN CAL	Lum, H.	ARC	Mizell, D. W.	NCC 2-539	2269
22	UNIV SO MISSISSIPPI	Barlow, R. M.	NSTL	Huffman, G. D.	NAS13-326	3876
22	UNIV SO MISSISSIPPI	Bivins, R. G.	HQ-IU	Huffman, D.	NASW 4320	3875
22	UNIV TEXAS-AUSTIN	Wong, C. M.	ARC	Kuipers, B. J.	NAG 2-507	5287
22	UNIV TEXAS-AUSTIN	Carroll, S. N.	MSFC	Wie, B.	NAS 8-36224	5335
22	UNIV TEXAS-EL PASO	Healey, K. J.	JSC	Patterson, D. W.	NAG 9-147	5393
22	UNIV TEXAS-EL PASO	Healey, K.	JSC	Patterson, D.	NAG 9-285	5396
22	UNIV OF TOLEDO	Jacobs, B.	GSFC	Kertz, G.	NAG 5-586	4762
22	UNIV OF TOLEDO	Stevens, G. H.	LERC	Kwatra, S. C.	NAG 3-157	4750
22	UNIV OF VIRGINIA	Shoosmith, J. N.	LARC	Ortega, J. M.	NAG 1-242	5599
22	UNIV OF VIRGINIA	Holloway, C. M.	LARC	Knight, J. C.	NAG 1-260	5600
22	UNIV OF VIRGINIA	Storaasli, O. O.	LARC	Pratt, T. W.	NAG 1-467	5603
22	UNIV OF VIRGINIA	Eckhardt, D. E.	LARC	Knight, J. C.	NAG 1-511	5604
22	UNIV OF VIRGINIA	Delaat, J. C.	LERC	Weaver, A. C.	NAG 3-630	5611
22	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Ortega, J. M.	NGT 00-070-051	5646
22	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Ortega, J. M.	NGT 00-070-052	5647
22	UNIV WISC-MADISON	Villasenor, A. J.	HQ-EC	Landweber, L. H.	NAGW 1318	5877

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
22	COLLEGE OF WM & MARY	Smith, K.	LARC	Noonan, R. E.	NAG 1-647	5481
22	COLLEGE OF WM & MARY	Sliwa, N. E.	LARC	Bynum, W. L.	NAG 1-775	5483
22	COLLEGE OF WM & MARY	Sjogren, J. A.	LARC	Kearns, J. P.	NAG 1-787	5484
22	COLLEGE OF WM & MARY	Eckhardt, D. E.	LARC	Miller, K. W.	NAG 1-884	5486
22	COLLEGE OF WM & MARY	Johnson, S. C.	LARC	Morell, L. J.	NAG 1-894	5487
22	COLLEGE OF WM & MARY	Sliwa, N. E.	LARC	Bynum, W. L.	NAG 1-906	5489
22	COLLEGE OF WM & MARY	Steinmetz, G. G.	LARC	Feyock, S.	NCC 1-122	5495
22	COLLEGE OF WM & MARY	Owens, F. C.	HQ-LE	Miller, K.	NGT 00-050-052	5497
22	COLLEGE OF WM & MARY	Owens, F. C.	HQ-LE	Park, S. K.	NGT 00-050-111	5498
22	COLLEGE OF WM & MARY	Owens, F. C.	HQ-LE	Park, S. K.	NGT 00-050-117	5499
22	WORCESTER POLY INST	Johnson, S. C.	LARC	Green, P. E.	NAG 1-809	3686
22	YALE UNIVERSITY	Sjogren, J. A.	LARC	Smith, R. M.	NAG 1-897	2460
29	ATLANTA UNIVERSITY	Goode, P. W.	LARC	Warsi, N. A.	NAG 1-412	2684
29	BOWIE STATE COLLEGE	Bonavito, N. L.	GSFC	Bhatia, M. S.	NAG 5-499	3217
29	CAL STATE U-NRTHRIDGE	Steger, J. L.	ARC	Seki, R.	NCC 2-515	1558
29	CARNEGIE-MELLON UNIV	Park, S. K.	LARC	Casasent, D. P.	NAG 1-575	4822
29	CLEMSON UNIV-CLEMSON	Bavuso, S. J.	LARC	Geist, R. S.	NAG 1-755	5010
29	CLEVELAND STATE UNIV	Glasgow, T. K.	LERC	Kramerich, G. L.	NCC 3-41	4592
29	COLUMBIA UNIVERSITY	Smith, R. E., Jr.	LARC	Eiseman, P. R.	NAG 1-427	4133
29	COLUMBIA UNIVERSITY	Choo, Y. K.	LERC	Eiseman, P. R.	NAG 3-877	4141
29	DUKE UNIVERSITY	Bavuso, S. J.	LARC	Trivedi, K. S.	NAG 1-70	4396
29	FURMAN UNIVERSITY	Hill, E.	MSFC	Abernethy, K.	NAG 8-646	5024
29	GEORGE WASHINGTON U	Finelli, G. B.	LARC	Miller, D. R.	NAG 1-771	2525
29	HAMPTON UNIVERSITY	Hogge, J. E.	LARC	Walker, R. L.	NAG 1-789	5515
29	IOWA STATE UNIV	Weilmuenster, K. J.	LARC	Tannehill, J. C.	NAG 1-313	3055
29	IOWA STATE UNIV	Sewall, W. G.	LARC	Tannehill, J. C.	NAG 1-645	3056
29	MASS INST OF TECH	Zang, T. A.	LARC	Patera, A. T.	NAG 1-574	3488
29	MISSISSIPPI STATE U	Emens, F.	MSFC	Ingels, F. M.	NAS 8-36717	3866
29	NEW YORK INST TECH	Pohly, J. G.	HQ-U	Williams, T.	NGT 33-230-830	4269
29	NORFOLK STATE UNIV	Lambiotte, J. J.	LARC	Shah, S. N.	NAG 1-764	5528
29	OLD DOMINION UNIV	Dagenhart, J. R.	LARC	Kandil, O. A.	NAG 1-729	5552
29	OLD DOMINION UNIV	Dotson, K. J.	LARC	Wilson, L.	NAG 1-750	5556
29	OLD DOMINION UNIV	Finelli, G. B.	LARC	Overstreet, C. M.	NAG 1-902	5567
29	OLD DOMINION UNIV	Owens, F. C.	HQ-LE	Swetits, J.	NGT 47-003-804	5594
29	RENSSELAER POLY-NY	Woo, A. C.	ARC	Shephard, M.	NCA 2-319	4304
29	RUTGERS ST U-PISCTWY	Goslee, J. W.	LARC	Luxhoj, J. T.	NAG 1-829	4063
29	SPELMAN COLLEGE	Goode, P. W.	LARC	Martin, B. J.	NAG 1-712	2753
29	STANFORD UNIVERSITY	Oliver, B. M.	ARC	Peterson, A. M.	NCA 2-110	1685
29	STANFORD UNIVERSITY	Lum, H.	ARC	Flynn, M. J.	NCA 2-338	1721
29	STANFORD UNIVERSITY	Brocker, D. H.	ARC	Leifer, L. J.	NCC 2-461	1751
29	STANFORD UNIVERSITY	Olsen, G. C.	LARC	Hughes, T. J.	NAG 1-361	1622
29	STEVENS INST OF TECH	Bavuso, S. J.	LARC	Swern, F. L.	NAG 1-587	4064
29	STEVENS INST OF TECH	Margolis, M. S.	HQ-U	Prather, E. N.	NGT 00-090-008	4065
29	TEXAS TECH UNIV	Chapman, G. T.	ARC	Martin, C. F.	NAG 2-403	5220
29	UNIV OF AKRON	Tanner, J. A.	LARC	Padovan, J.	NAG 1-444	4685
29	UNIV OF AKRON	Petrik, E. J.	LERC	Durkin, J.	NAG 3-923	4707
29	UNIV ALA-HUNTSVILLE	Martin, C.	MSFC	Chung, T. J.	NAG 8-627	1112
29	UNIV ALA-HUNTSVILLE	Wolfsberger, J. W.	MSFC	Ford, D. R.	NAG 8-641	1115
29	UNIV ALA-HUNTSVILLE	Kaufman, J. W.	MSFC	Mc nider, R. T.	NAS 8-36718	1155
29	UNIV ALA-UNIVERSITY	Patel, S.	MSFC	Bation, R. G.	NAG 8-703	1183
29	UNIV CALIF-L ANGELES	Anderson, K. F.	ARC	Yao, K.	NAG 2-303	1969
29	UNIV CALIF-L ANGELES	Anderson, K. F.	ARC	Omura, J. K.	NAG 2-304	1970
29	UNIV CALIF-L ANGELES	Anderson, K. F.	ARC	Balakrishnan, A. V.	NAG 2-367	1974
29	UNIV CALIF-L ANGELES	Anderson, K. F.	ARC	Yao, K.	NAG 2-433	1975
29	UNIV CALIF-SAN DIEGO	Goforth, A.	ARC	Turcotte, D. L.	NAG 2-506	2079
29	UNIV COLORADO-BOLDR	Storaasli, O. O.	LARC	Jordan, H.	NAG 1-640	2302
29	UNIV COLORADO-BOLDR	Villasenor, A.	HQ-EI	Hansen, E. R.	NAGW 1095	2371
29	UNIV HOUSTON-HOUSTON	Tobak, M.	ARC	Golubitsky, M.	NAG 2-432	5222
29	UNIV HOUSTON-HOUSTON	Savely, R. T.	JSC	Johnson, G. G.	NAG 9-210	5237
29	UNIV MARYLAND-COL PK	Tischler, M.	ARC	Fan, M.	NCA 2-309	3380

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
29	UNIV MARYLAND-COL PK	Tischler, M. B.	ARC	Celi, R.	NCA 2-310	3381
29	UNIV MARYLAND-COL PK	Price, R. D.	GSFC	Ragan, R. M.	NAG 5-512	3314
29	UNIV MARYLAND-COL PK	Reph, M. G.	GSFC	Vernekar, A. D.	NCA 5-110	3382
29	UNIV OF MASS-AMHERST	Bailey, M. C.	LARC	Yngvesson, S.	NAS 1-18310	3666
29	UNIV MICH-ANN ARBOR	Lum, H.	ARC	Volz, R. A.	NCA 2-341	3784
29	UNIV OF PENNSYLVANIA	Woolford, B. J.	JSC	Altschuler, M. D.	NAS 9-17003	4946
29	UNIV OF SO FLORIDA	Goode, P. W.	LARC	Varanasi, M. R.	NAG 1-632	2675
29	UNIV OF SO FLORIDA	Goode, P. W.	LARC	Varanasi, M. R.	NAG 1-772	2676
29	UNIV TENNESSEE-KNOXV	Knight, N. F.	LARC	George, J. A.	NAG 1-803	5057
29	UNIV OF WALES	Bey, K. S.	LARC	Morgan, K.	NAGW 478	5942
29	VANDERBILT UNIVERSTY	Fernandez, K. R.	MSFC	Cook, G. E.	NAG 8-690	5083
29	COLLEGE OF WM & MARY	Liceaga, C. A.	LARC	Morrell, L. J.	NAG 1-824	5485
31	ALABAMA A&M UNIV	Fox, K.	HQ-EL	Tan, A.	NAGW 1067	1013
31	ARIZONA STATE UNIV	Brinton, H. C.	HQ-EL	Smith, B. A.	NAGW 519	1235
31	ARIZONA STATE UNIV	Underwood, J. R.	HQ-EL	Greeley, R.	NSG 7548	1261
31	AUBURN UNIV-AUBURN	Moore, R. L.	MSFC	Hinata, S.	NAS 8-35057	1030
31	AUBURN UNIV-AUBURN	Parr, R. A.	MSFC	Crocker, M. J.	NAS 8-36654	1035
31	BENNINGTON COLLEGE	Hall, F.	GSFC	Woods, K. D.	NAG 5-992	5466
31	BOSTON UNIVERSITY	Harwell, B.	MSFC	Meudillo, M.	NAS 8-32844	3431
31	BOSTON UNIVERSITY	Reasoner, D. L.	MSFC	Mendillo, M.	NAS 8-36324	3432
31	CALIF INST OF TECH	Barrowman, J. S.	GSFC	Zirin, H.	NAS 5-27269	1502
31	CALIF INST OF TECH	Jackman, C. H.	HQ-EE	Yung, Y. L.	NAGW 413	1486
31	CALIF INST OF TECH	Fox, K.	HQ-EL	Ingersoll, A. P.	NAGW 58	1481
31	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Yung, Y. L.	NAGW 313	1485
31	CALIF INST OF TECH	Fix, K.	HQ-EL	Yung, Y. L.	NSG 7376	1528
31	CAL STATE U-FULLERTN	Brinton, H. C.	HQ-EL	Ryan, J. A.	NSG 7614	1546
31	CITY COLLEGE OF N Y	Canuto, V. C.	GSFC	Lea, R. M.	NAG 5-372	4114
31	CLARKSON UNIVERSITY	Miller, T. L.	HQ-EE	Tung, K. K.	NAGW 910	4126
31	COLORADO STATE UNIV	Koch, S. E.	GSFC	Pielke, R. A.	NAG 5-359	2282
31	COLORADO STATE UNIV	King, M. D.	GSFC	Randall, D.	NAG 5-1058	2284
31	COLORADO STATE UNIV	McDougal, D. S.	LARC	Cox, S. K.	NAG 1-554	2275
31	COLORADO STATE UNIV	Smith, G. L.	LARC	Vonder Haar, T. H.	NAG 1-661	2276
31	COLORADO STATE UNIV	Smith, G. L.	LARC	Haar, T. H.	NAG 1-865	2277
31	COLORADO STATE UNIV	Owens, T. L.	LARC	Randall, D. A.	NAG 1-893	2278
31	COLORADO STATE UNIV	Hall, J. B.	LARC	Vonderhaar, T. H.	NAS 1-16465	2290
31	COLORADO STATE UNIV	Spencer, R. W.	MSFC	Bringe, V. N.	NAG 8-643	2285
31	COLORADO STATE UNIV	Green, W. M.	MSFC	Purdom, J. F.	NAS 8-36472	2293
31	COLORADO STATE UNIV	Curran, R. J.	HQ-EE	Reiter, E. R.	NAGW 601	2289
31	COLUMBIA UNIVERSITY	Welker, J. E.	GSFC	Kastens, K. A.	NAG 5-1082	4151
31	COLUMBIA UNIVERSITY	Travis, L. D.	GSFC	Broecker, W. S.	NCC 5-29	4174
31	COLUMBIA UNIVERSITY	Stothers, R.	GSFC	Chu, C. K.	NCC 5-34	4176
31	COLUMBIA UNIVERSITY	Travis, L.	GSFC	Levenson, R. L.	NCC 5-36	4177
31	COLUMBIA UNIVERSITY	McDougal, D. S.	LARC	Kukla, G.	NAG 1-653	4136
31	COLUMBIA UNIVERSITY	Kurylo, M. J.	HQ-EE	Broecker, W. S.	NAGW 895	4164
31	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Rosborough, G. W.	NAG 5-813	4197
31	CORNELL UNIVERSITY	Reasoner, D. L.	MSFC	Kelley, M.	NAS 8-36687	4233
31	CORNELL UNIVERSITY	Fox, K.	HQ-EL	Sagan, C.	NGL 33-010-082	4236
31	CORNELL UNIVERSITY	Fox, K.	HQ-EL	Gierasch, P. J.	NGL 33-010-186	4237
31	CORNELL UNIVERSITY	Fox, K.	HQ-EL	Sagan, C.	NGR 33-010-082	4238
31	DREXEL UNIVERSITY	Kunde, V. G.	GSFC	Abbas, M. M.	NAG 5-909	4842
31	DREXEL UNIVERSITY	Cooper, J. E.	LARC	House, F. B.	NAS 1-18154	4846
31	DREXEL UNIVERSITY	Robertson, F.	MSFC	Perkey, D. J.	NAG 8-687	4843
31	DREXEL UNIVERSITY	Robertson, F.	MSFC	Perkey, D. J.	NAG 8-714	4844
31	DREXEL UNIVERSITY	Kurylo, M. J.	HQ-EE	Perkey, D. J.	NAGW 737	4845
31	DUKE UNIVERSITY	Kurylo, M. J.	HQ-EE	Delucia, F. C.	NSG 7540	4411
31	FLORIDA ATLANTIC U	Margitan, J. J.	HQ-EE	Burnett, C. R.	NAGW 989	2590
31	FLORIDA STATE UNIV	Baker, W.	GSFC	Pfeffer, R. L.	NAG 5-777	2599
31	FLORIDA STATE UNIV	Helfand, M.	GSFC	Pfeffer, R. L.	NAG 5-815	2600
31	FLORIDA STATE UNIV	Nicholson, J. R.	KSC	Fuelberg, H. E.	NAG10-47	2609
31	FLORIDA STATE UNIV	Bendura, R. J.	LARC	Andreae, M. O.	NAG 1-588	2595

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	FLORIDA STATE UNIV	Greene, W. M.	MSFC	Fuelberg, H. E.	NAG 8-33	2603
31	FLORIDA STATE UNIV	Robertson, F. R.	MSFC	Ray, P.	NAG 8-631	2605
31	FLORIDA STATE UNIV	Christain, H. J.	MSFC	Fuelberg, H.	NAG 8-653	2606
31	FLORIDA STATE UNIV	Tuyahov, A. J.	HQ-EE	Smith, E. A.	NAGW 991	2608
31	FLORIDA STATE UNIV	Hampson, R. F.	HQ-EE	Hunt, R. H.	NSG 7473	2616
31	FLORIDA STATE UNIV	Owens, F. C.	HQ-XE	Nicholson, S. E.	NGT 00-070-062	2612
31	GEORGE WASHINGTON U	Curran, R. J.	HQ-EE	Dressler, R. F.	NAGW 720	2533
31	HAMPTON UNIVERSITY	Stassinopoulos, E. G.	GSFC	Venable, D. D.	NAG 5-929	5520
31	HARVARD UNIVERSITY	Condon, E. P.	ARC	Anderson, J. G.	NAG 2-443	3444
31	HARVARD UNIVERSITY	Condon, E. P.	ARC	Anderson, J. G.	NAG 2-526	3446
31	HARVARD UNIVERSITY	Prather, M.	GSFC	McElroy, M. B.	NAG 5-719	3448
31	HARVARD UNIVERSITY	Prather, M. J.	GSFC	McElroy, M. B.	NAG 5-785	3449
31	HARVARD UNIVERSITY	Prather, M. J.	GSFC	McElroy, M. B.	NAG 5-786	3450
31	HARVARD UNIVERSITY	Fishman, J.	LARC	McElroy, M. B.	NAG 1-55	3443
31	HARVARD UNIVERSITY	Jackman, C. H.	HQ-EE	Wofsy, S. C.	NAGW 1230	3464
31	HARVARD UNIVERSITY	Margitan, J. J.	HQ-EE	Anderson, J. G.	NASW 3960	3469
31	HARVARD UNIVERSITY	Fox, K.	HQ-EL	McElroy, G. B.	NAGW 417	3460
31	HARVARD UNIVERSITY	Fox, K.	HQ-EL	Goody, R. M.	NAGW 1384	3466
31	HARVARD UNIVERSITY	Fox, K.	HQ-EL	Parkinson, W. H.	NAGW 1400	3467
31	HARVARD UNIVERSITY	Fox, K.	HQ-EL	Goody, R. M.	NGL 22-007-228	3472
31	HOWARD UNIVERSITY	Alterescu, S.	GSFC	Thorpe, A. N.	NAG 5-1017	2562
31	HOWARD UNIVERSITY	Brinton, H. C.	HQ-EL	Jackson, W. M.	NAGW 446	2565
31	HOWARD UNIVERSITY	Fox, K.	HQ-EL	Okabe, H.	NAGW 785	2566
31	IOWA STATE UNIV	Peslen, C. A.	GSFC	Chen, T. C.	NAG 5-355	3064
31	IOWA STATE UNIV	Straus, D.	GSFC	Stanford, J. L.	NAG 5-577	3065
31	IOWA STATE UNIV	Wu, M. L.	GSFC	Stanford, J. L.	NAG 5-1060	3067
31	JOHNS HOPKINS UNIV	Schoeberl, M. R.	GSFC	Strobel, D. F.	NAG 5-796	3239
31	JOHNS HOPKINS UNIV	Smith, M. A.	HQ-EE	Strobel, D. F.	NAGW 826	3251
31	JOHNS HOPKINS UNIV	Fox, K.	HQ-EL	Strobel, D. F.	NAGW 648	3248
31	MASS INST OF TECH	Valero, F. P.	ARC	Newell, R. E.	NCA 2-327	3606
31	MASS INST OF TECH	Shiue, J. C.	GSFC	Staelin, D. H.	NAG 5-10	3518
31	MASS INST OF TECH	Genio, A. D.	GSFC	Eagleson, P. S.	NAG 5-743	3531
31	MASS INST OF TECH	Straus, D.	GSFC	Dole, R. M.	NAG 5-927	3537
31	MASS INST OF TECH	Helfand, C. M.	GSFC	Lindzen, R. S.	NAG 5-1061	3540
31	MASS INST OF TECH	Welker, J. E.	GSFC	McNutt, M.	NAG 5-1084	3541
31	MASS INST OF TECH	Suarez, M.	GSFC	Stone, P. H.	NGR 22-009-727	3616
31	MASS INST OF TECH	Rind, D.	GSFC	Stone, P. H.	NSG 5113	3637
31	MASS INST OF TECH	Rosendhal, J. D.	HQ-E	Fegley, B.	NAGW 821	3573
31	MASS INST OF TECH	Jackman, C. H.	HQ-EE	Prinn, R. G.	NAGW 474	3566
31	MASS INST OF TECH	Kakar, R. K.	HQ-EE	Lindzen, R. S.	NAGW 525	3567
31	MASS INST OF TECH	Jackman, C. H.	HQ-EE	Newell, R. E.	NAGW 703	3569
31	MASS INST OF TECH	Jackman, C. H.	HQ-EE	Prinn, R. G.	NAGW 732	3571
31	MASS INST OF TECH	Fox, K.	HQ-EL	Fegley, B.	NAGW 997	3575
31	MISSISSIPPI STATE U	Wilson, H. B.	MSFC	Whitfield, D. L.	NAS 8-36486	3865
31	NEW MEX INST MINING	Christian, H. J.	MSFC	Jones, J. J.	NAG 8-751	4070
31	NEW MEX ST U-LAS CR	Brinton, H. C.	HQ-EL	Beebe, R. F.	NAGW 645	4078
31	NEW YORK UNIVERSITY	Suarey, M.	GSFC	Isaacson, E.	NAG 5-341	4273
31	NEW YORK UNIVERSITY	Pfaendtner, J.	GSFC	Cohn, S.	NAG 5-820	4274
31	NEW YORK UNIVERSITY	Peslen, C. A.	GSFC	Takano, K.	NAG 5-1033	4275
31	OHIO STATE UNIV	Kurylo, M. J.	HQ-EE	Shaw, J. H.	NAGW 1129	4660
31	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NCC 1-28	5573
31	OREGON GRADUATE CTR	Hoell, J. M.	LARC	Rasmussen, R. A.	NAG 1-589	4790
31	OREGON GRADUATE CTR	Demore, W. B.	HQ-EE	Rasmussen, R. A.	NAGW 280	4793
31	OREGON STATE UNIV	Pollack, J. B.	ARC	Barnes, J. R.	NCA 2-205	4808
31	OREGON STATE UNIV	Shukla, J.	GSFC	Han, Y. J.	NCA 5-51	4795
31	OREGON STATE UNIV	Adler, R. F.	GSFC	Decker, F. W.	NSG 5343	4813
31	OREGON STATE UNIV	Fox, K.	HQ-E	Barnes, J. R.	NAGW 1127	4803
31	OREGON STATE UNIV	Owens, F. C.	HQ-XE	Barnes, J. R.	NGT 00-050-167	4809
31	PENN STATE U-UNIV PK	Toon, O. B.	ARC	Carlson, T. N.	NCC 2-316	4919
31	PENN STATE U-UNIV PK	Toon, O. B.	ARC	Carlson, T. N.	NCC 2-489	4921

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	PENN STATE U-UNIV PK	Susskind, J.	GSFC	Herman, R. H.	NAG 5-303	4880
31	PENN STATE U-UNIV PK	Schmidlin, F. J.	GSFC	Olivero, J. J.	NAG 5-606	4884
31	PENN STATE U-UNIV PK	Uccellini, L. W.	GSFC	Warner, T.	NSG 5205	4934
31	PENN STATE U-UNIV PK	McDougal, D. S.	LARC	Fairall, C. W.	NAG 1-652	4868
31	PENN STATE U-UNIV PK	Kaufman, J. W.	MSFC	Clark, J. H.	NAS 8-36150	4907
31	PENN STATE U-UNIV PK	Miller, T. L.	HQ-EE	Warner, T. T.	NAGW 994	4898
31	PENN STATE U-UNIV PK	Kurylo, M. J.	HQ-EE	Olivero, J.	NAGW 1302	4901
31	PENN STATE U-UNIV PK	Kakar, R. K.	HQ-EE	Dutton, J. A.	NAGW 1434	4904
31	PORTLAND STATE UNIV	Hoell, J. M.	LARC	O'brien, R. J.	NAG 1-697	4815
31	PRINCETON UNIVERSITY	Owens, F. C.	HQ-XE	Pierrehumbert, R. T.	NGT 00-050-324	4053
31	PURDUE UNIVERSITY	Curran, R. J.	GSFC	Smith, P. G.	NAG 5-101	3015
31	PURDUE UNIVERSITY	Thiele, O. W.	GSFC	Harshvardhan	NAG 5-1088	3016
31	PURDUE UNIVERSITY	Owens, T. L.	LARC	Smith, P. J.	NAG 1-552	2992
31	PURDUE UNIVERSITY	Fichtl, G. H.	MSFC	Smith, P. J.	NAS 8-34009	3023
31	PURDUE UNIVERSITY	Kaufman, J. W.	MSFC	Vincent, D. G.	NAS 8-35187	3024
31	PURDUE UNIVERSITY	Kaufman, J.	MSFC	Vincent, D. G.	NAS 8-37127	3025
31	PURDUE UNIVERSITY	Owens, F. C.	HQ-XE	Sun, W. Y.	NGT 00-050-154	3036
31	RICE UNIVERSITY	Taylor, H. A.	GSFC	Cloutier, P.	NAS 5-28764	5127
31	RICE UNIVERSITY	Fox, K.	HQ-EL	Chamberlain, J. W.	NSG 7043	5137
31	RICE UNIVERSITY	Fox, K.	HQ-EL	Stebbins, R. F.	NSG 7386	5138
31	ST JOHN'S COL MAIN C	Potter, P. Y.	MSFC	Beall, J. H.	NAG 8-625	3281
31	ST JOSEPH COL-CONN	Chan, K. R.	ARC	Robinson, G. D.	NAS 2-12490	2453
31	ST LOUIS UNIVERSITY	Wilson, G. S.	MSFC	Fuelberg, H. E.	NAS 8-35330	3878
31	SAN DIEGO STATE UNIV	Hampson, R. F.	HQ-EE	Lee, L. C.	NAGW 661	1574
31	SAN JOSE STATE UNIV	Haberle, R.	ARC	Bornstein, R.	NCA 2-220	1596
31	SAN JOSE STATE UNIV	Vedder, J. F.	ARC	Goodman, J.	NCC 2-168	1601
31	SAN JOSE STATE UNIV	Chan, K. R.	ARC	Goodman, J.	NCC 2-211	1603
31	SAN JOSE STATE UNIV	Wingrove, R. C.	ARC	Lester, P. F.	NCC 2-315	1605
31	SAN JOSE STATE UNIV	Brocker, D. H.	ARC	Lester, P.	NCC 2-471	1614
31	SO DAKOTA SCHL MINES	Wu, M. L.	GSFC	Doneaud, A. A.	NAG 5-386	5033
31	SO DAKOTA SCHL MINES	Crabill, N. L.	LARC	Helsdon, J. H., Jr.	NAG 1-463	5031
31	SO DAKOTA SCHL MINES	Wielicki, B. A.	LARC	Welch, R. M.	NAG 1-542	5032
31	SO DAKOTA SCHL MINES	Robertson, F. R.	MSFC	Orville, H.	NAG 8-632	5034
31	GEORGIA INST OF TECH	Reber, C.	GSFC	Cunnold, D.	NAS 5-27264	2732
31	GEORGIA INST OF TECH	Browell, E. V.	LARC	Davis, D. D.	NAG 1-50	2690
31	GEORGIA INST OF TECH	Reichle, H. G., Jr.	LARC	Chameides, W. J.	NAG 1-786	2703
31	GEORGIA INST OF TECH	Browell, E. V.	LARC	Bradshaw, J. D.	NAG 1-818	2704
31	GEORGIA INST OF TECH	Maddrea, G. L.	LARC	Grams, G. W.	NAS 1-18447	2730
31	GEORGIA INST OF TECH	Maddrea, G. L.	LARC	Cunnold, D. M.	NAS 1-18487	2731
31	GEORGIA INST OF TECH	Spencer, R.	MSFC	Gagliano, J.	NAS 8-37142	2735
31	GEORGIA INST OF TECH	Schiffer, R. A.	HQ-EE	Kiang, C. S.	NAGW 698	2724
31	GEORGIA INST OF TECH	Jackman, C. H.	HQ-EE	Alyea, F. N.	NAGW 729	2725
31	GEORGIA INST OF TECH	Kurylo, M. J.	HQ-EE	Wine, P. H.	NAGW 1001	2726
31	GEORGIA INST OF TECH	Fox, K.	HQ-EL	Steffes, P. G.	NAGW 533	2723
31	GEORGIA INST OF TECH	Owens, F. C.	HQ-XE	Chameides, W. L.	NGT 00-070-047	2744
31	GEORGIA INST OF TECH	Owens, F. C.	HQ-XE	Davis, D.	NGT 00-070-061	2745
31	SO UNIV & A&M COL-BR	Carter, D. J., Jr.	LARC	Scott, R. L.	NAS 1-15335	3198
31	STANFORD UNIVERSITY	Wales, R. O.	GSFC	Helliwell, R. A.	NAS 5-28447	1667
31	STANFORD UNIVERSITY	Hibbard, W.	GSFC	Banks, P.	NAS 5-30347	1669
31	STANFORD UNIVERSITY	Sisson, J. M.	MSFC	Banks, P.	NAS 8-36812	1672
31	STANFORD UNIVERSITY	Fox, K.	HQ-EL	Eshleman, V. R.	NGL 05-020-014	1765
31	STANFORD UNIVERSITY	Ahluwalia, H. S.	HQ-EZ	Sturrock, P.	NAGW 1232	1664
31	STATE UNIV NY-ALBANY	Wilhelmi, A. J.	ARC	Kritz, M. A.	NAG 2-277	4312
31	STATE UNIV NY-ALBANY	Danielsen, E. F.	ARC	Kritz, M. A.	NCA 2-167	4326
31	STATE UNIV NY-ALBANY	Wegener, S.	ARC	Kritz, M. A.	NCC 2-502	4329
31	STATE UNIV NY-ALBANY	Danielsen, E. F.	ARC	Kritz, M. A.	NCC 2-530	4330
31	STATE UNIV NY-ALBANY	Niemann, H.	GSFC	Owen, T.	NAS 5-30126	4323
31	STATE UNIV NY-ALBANY	Ritter, J. A.	LARC	Fitzjarrald, D. R.	NAG 1-583	4309
31	STATE UNIV NY-ALBANY	Ritter, J. A.	LARC	Fitzjarrald, D. R.	NAG 1-692	4310
31	STATE UNIV NY-ALBANY	Ritter, J. A.	LARC	Fitzjarrald, D. R.	NAG 1-847	4311

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	STATE UNIV NY-ALBANY	Cooper, J. L.	LARC	Cess, R. D.	NAS 1-18155	4322
31	STATE UNIV NY-ALBANY	Cofer, W. R., III	LARC	Lala, G. G.	NCC 1-102	4327
31	STATE UNIV NY-ALBANY	Blakeslee, R. J.	MSFC	Vonnegut, B.	NAG 8-628	4316
31	STATE UNIV NY-ALBANY	Blakeslee, R. J.	MSFC	Orville, R. E.	NAG 8-737	4317
31	STATE UNIV NY-ALBANY	Christian, H. J.	MSFC	Orville, R. E.	NAS 8-33380	4324
31	ST U NY COL-PURCHASE	Helfand, M.	GSFC	Tenenbaum, J.	NSG 5077	4379
31	STATE U NY-STONY BRK	Margitan, J. J.	HQ-EE	Soloman, P. M.	NAGW 353	4357
31	STATE U NY-STONY BRK	Brinton, H. C.	HQ-EL	Fox, J. L.	NAGW 665	4358
31	STATE U NY-STONY BRK	Fox, K.	HQ-EL	Caldwell, J. J.	NAGW 876	4361
31	STATE U NY-STONY BRK	Fox, K.	HQ-EL	Varanasi, P.	NGR 33-015-139	4368
31	TEXAS A&M UNIV SYSTM	Kaufman, J. W.	MSFC	McGuirk, J. P.	NAS 8-37284	5146
31	TEXAS A&M UNIVERSITY	Lau, W. K.	GSFC	North, G. R.	NAG 5-868	5165
31	TEXAS A&M UNIVERSITY	Bell, T. L.	GSFC	North, G. R.	NAG 5-869	5166
31	UNIV OF AKRON	Watson, W. R.	LARC	Hariharan, S. I.	NAG 1-624	4687
31	UNIV ALA-HUNTSVILLE	Reichmann, E. J.	MSFC	Wu, S. T.	NAG 8-53	1084
31	UNIV ALA-HUNTSVILLE	Johnson, D.	MSFC	Hung, R. J.	NAG 8-63	1089
31	UNIV ALA-HUNTSVILLE	Curreri, P. A.	MSFC	Kaukler, W. F.	NAG 8-69	1092
31	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Karr, G. R.	NAG 8-79	1093
31	UNIV ALA-HUNTSVILLE	Robertson, F. R.	MSFC	Knupp, K. R.	NAG 8-654	1117
31	UNIV ALA-HUNTSVILLE	Fishman, G. J.	MSFC	Paciesas, W. S.	NAS 8-34137	1142
31	UNIV ALA-HUNTSVILLE	Richards, L. O.	MSFC	Wu, S. T.	NAS 8-34953	1143
31	UNIV ALA-HUNTSVILLE	Roberts, W. T.	MSFC	Wu, S. T.	NAS 8-36102	1147
31	UNIV ALA-HUNTSVILLE	Greene, W. M.	MSFC	McNider, R. T.	NAS 8-36279	1149
31	UNIV ALA-HUNTSVILLE	Arnold, J.	MSFC	McNider, R. T.	NAS 8-36479	1151
31	UNIV ALA-HUNTSVILLE	Hill, H. C.	MSFC	Torr, D. G.	NAS 8-37106	1157
31	UNIV ALA-HUNTSVILLE	Duncan, B.	MSFC	Ston, N.	NAS 8-37107	1158
31	UNIV ALA-HUNTSVILLE	Wilson, G. S.	MSFC	McNider, R. T.	NAS 8-37139	1159
31	UNIV ALA-HUNTSVILLE	Vinas, A. F.	HQ-EE	Wu, S. T.	NAGW 1117	1137
31	UNIV ALA-HUNTSVILLE	Dodge, J. D.	HQ-EE	Hung, R. J.	NAGW 1165	1138
31	UNIV ALASKA-FAIRBNKS	Milliner, C. F.	GSFC	Brown, N. B.	NAS 5-28971	1205
31	UNIV ALASKA-FAIRBNKS	Reasoner, D. L.	MSFC	Wescott, E. M.	NAS 8-36321	1206
31	UNIV ALASKA-FAIRBNKS	Miller, T. L.	HQ-EE	Fritts, D. C.	NAGW 1174	1199
31	UNIV OF ARIZONA	Twarowski, R. J.	ARC	Tomasko, M. G.	NAG 2-416	1275
31	UNIV OF ARIZONA	Niemann, H.	GSFC	Hunten, D.	NAS 5-30124	1380
31	UNIV OF ARIZONA	Wesenberg, R. P.	KSC	Krider, E. P.	NAS10-11390	1389
31	UNIV OF ARIZONA	Bilbro, J. W.	MSFC	Schotland, R. M.	NAG 8-637	1305
31	UNIV OF ARIZONA	Kaufman, J. W.	MSFC	Gall, R. L.	NAS 8-36278	1382
31	UNIV OF ARIZONA	Miller, T. L.	HQ-EE	Hood, L. L.	NAGW 909	1337
31	UNIV OF ARIZONA	Quaide, W.	HQ-EE	Tomasko, M. G.	NASW 4195	1387
31	UNIV OF ARIZONA	Fox, K.	HQ-EL	Lewis, J. S.	NAGW 340	1319
31	UNIV OF ARIZONA	Fox, K.	HQ-EL	Kumar, S.	NAGW 500	1321
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Broadfoot, A. L.	NAGW 610	1326
31	UNIV OF ARIZONA	Fox, K.	HQ-EL	Shemansky, D. E.	NAGW 649	1327
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Wisniewski, W. Z.	NAGW 716	1330
31	UNIV OF ARIZONA	Fox, K.	HQ-EL	Shemansky, D. E.	NAGW 744	1331
31	UNIV OF ARIZONA	Fox, K.	HQ-EL	Lunine, J. I.	NAGW 1039	1345
31	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Tomasko, M. G.	NAGW 1329	1367
31	UNIV OF ARIZONA	Fox, K.	HQ-EL	Hunten, D. M.	NSG 7558	1437
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Tomasko, M. G.	NSG 7573	1438
31	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Krider, E. P.	NGT 03-002-808	1427
31	UNIV ARKANSAS-FAYETV	Ragent, B.	ARC	Mazumder, M. K.	NAG 2-147	1444
31	UNIV ARKANSAS-LTL RK	Owens, F. C.	HQ-LE	Mazumder, M. K.	NGT 00-070-013	1449
31	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Anderson, K. A.	NAG 5-376	1810
31	UNIV CALIF-BERKELEY	Harwell, R.	MSFC	Bowyer, S.	NAS 8-32577	1848
31	UNIV CALIF-BERKELEY	Fox, K.	HQ-EL	Jackson, W. M.	NAGW 903	1924
31	UNIV CALIF-IRVINE	Hoell, J. M.	LARC	Rowland, F. S.	NAG 1-783	1946
31	UNIV CALIF-IRVINE	Margitan, J. J.	HQ-EE	Rowland, F. S.	NAGW 452	1953
31	UNIV CALIF-IRVINE	Kurylo, M. J.	HQ-EE	Rowland, F. S.	NAGW 914	1954
31	UNIV CALIF-L ANGELES	Atlas, R.	GSFC	Ghil, M.	NAG 5-713	1993
31	UNIV CALIF-L ANGELES	Suarez, M.	GSFC	Arakawa, A.	NAG 5-789	1994

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	UNIV CALIF-L ANGELES	Atlas, R. M.	GSFC	Ghil, M.	NAG 5-947	1996
31	UNIV CALIF-L ANGELES	Wales, R. O.	GSFC	Russell, C. T.	NAS 5-28448	2038
31	UNIV CALIF-L ANGELES	Chappell, C. R.	MSFC	Abdella, M. A.	NAG 8-74	2001
31	UNIV CALIF-L ANGELES	Jackman, C. H.	HQ-EE	Wurtele, M. G.	NAGW 774	2015
31	UNIV CALIF-L ANGELES	Smith, M. A.	HQ-EE	Mechoso, C. R.	NAGW 886	2017
31	UNIV CALIF-L ANGELES	Miller, T. L.	HQ-EE	Mechoso, C. R.	NAGW 1021	2020
31	UNIV CALIF-L ANGELES	Curran, R. J.	HQ-EE	Wurtele, M. G.	NAGW 1044	2021
31	UNIV CALIF-L ANGELES	Fox, K.	HQ-EL	Siscoe, G. L.	NAGW 87	2009
31	UNIV CALIF-L ANGELES	Fox, K.	HQ-EL	Luhmann, J. G.	NAGW 692	2013
31	UNIV CALIF-L ANGELES	Fox, K.	HQ-EL	Russell, C. T.	NAGW 717	2014
31	UNIV CALIF-L ANGELES	Brinton, H. C.	HQ-EL	Scarf, F. L.	NAGW 968	2018
31	UNIV CALIF-L ANGELES	Fox, K.	HQ-EL	Schubert, G.	NSG 7164	2068
31	UNIV CALIF-L ANGELES	Brinton, H. C.	HQ-EL	Coleman, P. J.	NSG 7295	2069
31	UNIV CALIF-SAN DIEGO	Suarez, M.	GSFC	Somerville, R. C.	NAG 5-236	2082
31	UNIV CALIF-SAN DIEGO	Whitlock, C. H.	LARC	Gautier, C.	NAG 1-889	2076
31	UNIV CALIF-SAN DIEGO	Butler, D. M.	HQ-EE	Gautier, C. H.	NAGW 1141	2128
31	UNIV OF CHICAGO	Hilsenrath, E.	GSFC	Frederick, J. E.	NAG 5-873	2852
31	UNIV OF CHICAGO	Chou, M. D.	GSFC	Donner, L. J.	NAG 5-1056	2854
31	UNIV OF CHICAGO	Sullivan, E. M.	LARC	Frederick, J. E.	NAS 1-18239	2874
31	UNIV OF CHICAGO	Barkstrom, B. R.	LARC	Ramanathan, V.	NAS 1-18385	2875
31	UNIV OF CHICAGO	Nunkle, R.	MSFC	Myers, P.	NAS 8-32828	2879
31	UNIV OF CHICAGO	Jackman, C. H.	HQ-EE	Tiao, G. C.	NAGW 762	2864
31	UNIV OF CHICAGO	Miller, T. L.	HQ-EE	Frederick, J. E.	NAGW 873	2866
31	UNIV OF CHICAGO	Dodge, J. C.	HQ-EE	Fujita, T. T.	NGR 14-001-008	2887
31	UNIV OF CHICAGO	Evans, L. G.	HQ-EL	Turkevich, A.	NAGW 878	2868
31	UNIV OF CHICAGO	Gold, R.	HQ-EL	Simpson, J. A.	NASW 4196	2881
31	UNIV OF CHICAGO	Jones, W. V.	HQ-EZ	Muller, D.	NSG 7464	2909
31	UNIV COLORADO-BOLDR	Cochalan, R.	GSFC	Barry, R. G.	NAG 5-898	2332
31	UNIV COLORADO-BOLDR	Rouzer, L.	GSFC	London, J.	NAS 5-27263	2394
31	UNIV COLORADO-BOLDR	Piterski, N.	GSFC	Rottman, G.	NAS 5-27750	2395
31	UNIV COLORADO-BOLDR	Mc peters, R.	GSFC	London, J.	NSG 5153	2434
31	UNIV COLORADO-BOLDR	McDougal, D. S.	LARC	Hanson, H. P.	NAG 1-651	2303
31	UNIV COLORADO-BOLDR	Hall, G.	MSFC	Hart, J. E.	NAS 8-31958	2404
31	UNIV COLORADO-BOLDR	Miller, T. L.	HQ-EE	Salby, M. L.	NAGW 772	2360
31	UNIV COLORADO-BOLDR	Smith, M. A.	HQ-EE	Birks, J. W.	NAGW 793	2361
31	UNIV COLORADO-BOLDR	Jackman, C. H.	HQ-EE	Solomon, S.	NAGW 862	2363
31	UNIV COLORADO-BOLDR	Jackman, C. H.	HQ-EE	Thomas, R. J.	NAGW 890	2364
31	UNIV COLORADO-BOLDR	Miller, T. L.	HQ-EE	Rusch, D. W.	NAGW 904	2365
31	UNIV COLORADO-BOLDR	Miller, T. L.	HQ-EE	Grossman, R. L.	NAGW 934	2366
31	UNIV COLORADO-BOLDR	Schiffer, R. A.	HQ-EE	London, J.	NAGW 1002	2369
31	UNIV COLORADO-BOLDR	Butler, D. M.	HQ-EE	Salby, M.	NAGW 1138	2377
31	UNIV COLORADO-BOLDR	Esenwein, G.	HQ-EE	Barth, C.	NASW 4091	2408
31	UNIV COLORADO-BOLDR	Fox, K.	HQ-EL	Hord, C. W.	NAGW 197	2353
31	UNIV COLORADO-BOLDR	Fox, K.	HQ-EL	Esposito, L.	NAGW 389	2354
31	UNIV COLORADO-BOLDR	Fox, K.	HQ-EL	Jakosky, B. M.	NAGW 552	2355
31	UNIV COLORADO-BOLDR	Fox, K.	HQ-EL	Clancy, R. T.	NAGW 1228	2383
31	UNIV COLORADO-BOLDR	Evans, L. G.	HQ-EL	Esposito, L. W.	NAGW 1263	2384
31	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-LE	Bohannan, B.	NGT 00-070-005	2430
31	UNIV OF DAYTON	Schmidlin, F. J.	GSFC	Luers, J. K.	NAS 5-28297	4745
31	UNIV OF DELAWARE	Goldstein, M. L.	GSFC	Mathaeus, W. H.	NAG 5-858	2483
31	UNIV OF DENVER	Vedder, J. F.	ARC	Murcray, D. G.	NAG 2-351	2442
31	UNIV OF DENVER	Wegener, S. S.	ARC	Wilson, J. C.	NAG 2-458	2443
31	UNIV OF DENVER	Wegener, S. S.	ARC	Wilson, J. C.	NCC 2-470	2448
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcray, D. G.	NAS 1-16306	2445
31	UNIV OF DENVER	Ringland, C. P.	LARC	Goldman, A.	NCC 1-48	2447
31	UNIV DIST COLUMBIA	Kyle, H. L.	GSFC	Ohuria, H.	NAG 5-1012	2575
31	UNIV OF FLORIDA	Wilhelmi, A. J.	ARC	Lanzerotti, L. J.	NAS 2-9976	2643
31	UNIV OF FLORIDA	Dodge, J. C.	HQ-EE	Uman, M. A.	NAGW 1153	2638
31	UNIV OF HAWAII-MANOA	Fitzjarrald, D. E.	MSFC	Clarke, A. D.	NAG 8-634	2770
31	UNIV OF HAWAII-MANOA	Scott, D. H.	HQ-EL	Singer, R. B.	NSG 7590	2814

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	UNIV HOUSTON-HOUSTON	Robbins, D. E.	JSC	Sheldon, W. R.	NAG 9-213	5240
31	UNIV HOUSTON-HOUSTON	Coleman, M.	JSC	Worley, F.	NAS 9-17512	5256
31	UNIV ILLINOIS-URBANA	Kaufman, J. W.	MSFC	Actemeir, G. L.	NAG 8-59	2943
31	UNIV ILLINOIS-URBANA	Jackman, C. H.	HQ-EE	Bowman, K. P.	NAGW 992	2946
31	UNIV OF IOWA	Wales, R. O.	GSFC	Frank, L.	NAS 5-28700	3107
31	UNIV OF IOWA	Wales, R. O.	GSFC	Gurnett, D. A.	NAS 5-28701	3108
31	UNIV OF IOWA	Ritter, J. A.	LARC	Carmichael, G. R.	NCC 1-97	3112
31	UNIV OF IOWA	Miller, T. L.	MSFC	Nathan, T. R.	NAG 8-635	3090
31	UNIV OF IOWA	Soutullo, B.	MSFC	Frank, L. A.	NAS 8-32807	3110
31	UNIV OF KANSAS	Hall, F. G.	GSFC	Kanemasu, E. T.	NAG 5-389	3138
31	UNIV OF KANSAS	Brinton, H. C.	HQ-EL	Beard, D. B.	NAGW 939	3142
31	UNIV OF KENTUCKY	Reichle, H. G.	LARC	Peters, L. K.	NAG 1-707	3165
31	UNIV MARYLAND-BALT	Kurylo, M. J.	HQ-EE	Strow, L. L.	NAGW 1020	3286
31	UNIV MARYLAND-COL PK	Fraser, R. S.	GSFC	Pinker, R. T.	NAG 5-203	3301
31	UNIV MARYLAND-COL PK	Tucker, C. J.	GSFC	Justice, C. O.	NAG 5-399	3309
31	UNIV MARYLAND-COL PK	Camillo, P. J.	GSFC	Shukla, J.	NAG 5-492	3312
31	UNIV MARYLAND-COL PK	Meneghini, R.	GSFC	Thompson, O. E.	NAG 5-542	3315
31	UNIV MARYLAND-COL PK	Reuter, D.	GSFC	Thompson, O. E.	NAG 5-726	3320
31	UNIV MARYLAND-COL PK	Susskind, J.	GSFC	Thompson, O. E.	NAG 5-730	3322
31	UNIV MARYLAND-COL PK	Spinhirne, J. D.	GSFC	Pinker, R. T.	NAG 5-731	3323
31	UNIV MARYLAND-COL PK	Thiele, O. W.	GSFC	Baer, F.	NAG 5-783	3325
31	UNIV MARYLAND-COL PK	Hoegy, W. R.	GSFC	Spencer, N.	NAG 5-822	3327
31	UNIV MARYLAND-COL PK	Sud, Y.	GSFC	Baer, F. E.	NAG 5-866	3328
31	UNIV MARYLAND-COL PK	Peslen, C. A.	GSFC	Baer, F. E.	NAG 5-867	3329
31	UNIV MARYLAND-COL PK	Chou, M. D.	GSFC	Pinker, R. T.	NAG 5-914	3334
31	UNIV MARYLAND-COL PK	Suarez, M.	GSFC	Straus, D.	NAG 5-1094	3347
31	UNIV MARYLAND-COL PK	Kreins, E. R.	GSFC	Baer, F.	NAS 5-29163	3373
31	UNIV MARYLAND-COL PK	Kreins, E.	GSFC	Baer, F.	NAS 5-30108	3375
31	UNIV MARYLAND-COL PK	Kreins, E. R.	GSFC	Baer, F.	NCC 5-39	3389
31	UNIV MARYLAND-COL PK	Kostiuk, T.	GSFC	Trasco, J.	NGL 21-002-033	3391
31	UNIV MARYLAND-COL PK	Browell, E. V.	LARC	Wilkerson, T. D.	NCC 1-25	3383
31	UNIV MARYLAND-COL PK	Schiffer, R. A.	HQ-EE	Shukla, J.	NAGW 557	3354
31	UNIV MARYLAND-COL PK	Curran, R. J.	HQ-EE	Shukla, J.	NAGW 558	3355
31	UNIV MARYLAND-COL PK	Curran, R. J.	HQ-EE	Shukla, J.	NAGW 1166	3367
31	UNIV MARYLAND-COL PK	Fox, K.	HQ-EL	Khanna, R. K.	NAGW 637	3357
31	UNIV MARYLAND-COL PK	Brinton, H. C.	HQ-EL	Papadopoulos, D.	NAGW 1037	3364
31	UNIV MARYLAND-COL PK	Gold, R.	HQ-EL	Adler, J.	NASW 4198	3378
31	UNIV MARYLAND-COL PK	Evans, L. G.	HQ-EL	Hamilton, D. C.	NASW 4221	3379
31	UNIV OF MIAMI	Fitzjarrald, D. E.	MSFC	Prospero, J. M.	NAG 8-621	2662
31	UNIV OF MIAMI	Fox, K.	HQ-EL	Branscome, L.	NAGW 644	2665
31	UNIV MICH-ANN ARBOR	Brace, L. H.	GSFC	Carignan, G. R.	NAG 5-419	3732
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25031	3772
31	UNIV MICH-ANN ARBOR	Honeycutt, G.	GSFC	Hays, P.	NAS 5-27751	3773
31	UNIV MICH-ANN ARBOR	Way, S.	GSFC	Carignan, G.	NAS 5-29344	3775
31	UNIV MICH-ANN ARBOR	Niemann, B.	GSFC	Atreya, S. K.	NAS 5-30119	3777
31	UNIV MICH-ANN ARBOR	Niemann, H. B.	GSFC	Donahue, T. M.	NAS 5-30120	3778
31	UNIV MICH-ANN ARBOR	Smith, G. L.	LARC	Bartman, F. L.	NAG 1-539	3712
31	UNIV MICH-ANN ARBOR	Sullivan, E. M.	LARC	Drayson, S. R.	NAS 1-18290	3768
31	UNIV MICH-ANN ARBOR	Duncan, B.	MSFC	Samir, U.	NAS 8-37108	3781
31	UNIV MICH-ANN ARBOR	Hudson, R. D.	HQ-EE	Horvath, J. J.	NAG 5-230	3731
31	UNIV MICH-ANN ARBOR	Fox, K.	HQ-EL	Cravens, T. E.	NAGW 15	3749
31	UNIV MICH-ANN ARBOR	Fox, K.	HQ-EL	Cravens, T. E.	NAGW 312	3752
31	UNIV MICH-ANN ARBOR	Brinton, H. C.	HQ-EL	Nagy, A. F.	NAGW 631	3754
31	UNIV MICH-ANN ARBOR	Fox, K.	HQ-EL	Shyn, T. W.	NAGW 938	3756
31	UNIV MICH-ANN ARBOR	Fox, K.	HQ-EL	Atreya, S. K.	NAGW 990	3757
31	UNIV MICH-ANN ARBOR	Fox, K.	HQ-EL	Gombosi, T. I.	NAGW 1366	3763
31	UNIV MICH-ANN ARBOR	Fox, K.	HQ-EL	Atreya, S. K.	NSG 7404	3806
31	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Cravens, T.	NGT 00-050-047	3792
31	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Atreya, S. K.	NGT 00-050-190	3795
31	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Atreya, S. K.	NGT 00-050-201	3797

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Donahue, T. M.	NGT 00-070-040	3801
31	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Gombosi, T. I.	NGT 00-070-096	3802
31	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LE	Sharn, W. E.	NGT 00-050-010	3791
31	U MINN-MNPLS-ST PAUL	Wilhelmi, A.	ARC	Wilson, J. C.	NAS 2-12090	3834
31	U MINN-MNPLS-ST PAUL	Klein, B.	GSFC	Kellogg, P.	NAS 5-29313	3837
31	U MINN-MNPLS-ST PAUL	Beswick, A. G.	LARC	Mauersberger, K.	NSG 1431	3851
31	U MINN-MNPLS-ST PAUL	Kurylo, M. J.	HQ-EE	Carr, R. W.	NAGW 800	3830
31	U MINN-MNPLS-ST PAUL	Fox, K.	HQ-EL	Pepin, R. O.	NAGW 1371	3832
31	UNIV MO-ST LOUIS	Fox, K.	HQ-EL	James, P. B.	NAGW 742	3887
31	UNIV MO-ST LOUIS	Fox, K.	HQ-EL	James, P. B.	NAGW 1116	3888
31	UNIV NEBRASKA-LINCLN	Hall, F.	GSFC	Blad, B.	NAG 5-561	3943
31	UNIV NEBRASKA-LINCLN	Fox, K.	HQ-EL	Samson, J. A.	NGR 28-004-021	3958
31	UNIV NEVADA-DRI	Johnson, S. C.	MSFC	Telford, J. W.	NAS 8-34685	3962
31	UNIV OF NEVADA-RENO	McKay, C. P.	ARC	Wharton, R. A.	NCA 2-182	3967
31	UNIV NEW HAMP-DURHAM	Lawrence, J. D.	LARC	Crill, P. M.	NAG 1-890	3986
31	UNIV NEW HAMP-DURHAM	Averner, M. M.	HQ-EB	Hines, M. E.	NAGW 512	3993
31	UNIV OKLAHOMA-NORMAN	Vccellini, L.	GSFC	Carr, F. H.	NAG 5-525	4787
31	UNIV OKLAHOMA-NORMAN	Whitehead, V.	JSC	Sasaki, Y. K.	NAG 9-228	4789
31	UNIV OF OSLO	Callis, L. B.	LARC	Isaksen, I. S.	NAGW 1315	5947
31	UNIV OF PITTSBURGH	Fox, K.	HQ-EL	Zipf, E. C.	NGL 39-011-030	4962
31	UNIV OF PITTSBURGH	Brinton, H. C.	HQ-EL	Biondi, M. A.	NGR 39-011-137	4963
31	UNIV OF RHODE ISLAND	Bullock, A.	HQ-EN	Cruickshank, A.	NAGW 1071	5004
31	UNIV OF SOUTH DAKOTA	Robertson, F. R.	MSFC	Smith, P.	NAG 8-633	5038
31	UNIV OF SOUTHERN CAL	Fox, K.	HQ-EL	Judge, D. L.	NAGW 163	2258
31	UNIV OF SOUTHERN CAL	Fox, K.	HQ-EL	Judge, D. L.	NGR 05-018-180	2270
31	UNIV TENNESSEE-KNOXV	Holland, R. L.	MSFC	Reddy, K. C.	NAS 8-36555	5072
31	UNIV TENNESSEE-KNOXV	Jasper, G. L.	MSFC	Frost, W.	NAS 8-37129	5073
31	UNIV TENNESSEE-KNOXV	Kakar, R. K.	HQ-EE	Antar, B. N.	NAGW 863	5068
31	UNIV TENNESSEE-KNOXV	Brinton, H. C.	HQ-EL	Fox, K.	NAGW 125	5067
31	UNIV TEXAS-AUSTIN	Mead, G.	GSFC	Tapley, B.	NAS 5-28192	5327
31	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Winget, D. E.	NGT 00-050-210	5351
31	UNIV TEXAS-DALLAS	Brace, L. H.	GSFC	Heikkila, W. J.	NSG 5085	5391
31	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hoffman, J. H.	NAG 8-55	5370
31	UNIV TEXAS-DALLAS	Jones, C. T.	MSFC	Tinsley, B. A.	NAS 8-33827	5383
31	UNIV TEXAS-DALLAS	Fox, K.	HQ-EL	Cunningham, A. J.	NAGW 632	5376
31	UNIV TEXAS-DALLAS	Fox, K.	HQ-EL	Johnson, F. S.	NGL 44-004-026	5388
31	UNIV TEXAS-DALLAS	Mellott, M. M.	HQ-ES	Hanson, W. B.	NGR 44-004-120	5389
31	UNIV OF TOLEDO	Brinton, H. C.	HQ-EL	Delsemme, A. H.	NAGW 969	4770
31	UNIV OF UTAH	Helfand, H. M.	GSFC	Paegle, J. N.	NAG 5-127	5443
31	UNIV OF UTAH	Chou, M.	GSFC	Ou, S. S.	NAG 5-732	5444
31	UNIV OF UTAH	Chou, M. D.	GSFC	Liou, K. N.	NAG 5-1050	5445
31	UNIV OF UTAH	Alvarez, J. M.	LARC	Sassen, K.	NAG 1-686	5433
31	UNIV OF UTAH	Alvarez, J. M.	LARC	Sassen, K.	NAG 1-718	5436
31	UNIV OF UTAH	Owens, T. L.	LARC	Sassen, K.	NAG 1-868	5437
31	UNIV OF VIRGINIA	Thiele, O. W.	GSFC	Garstang, M.	NAG 5-870	5619
31	UNIV OF VIRGINIA	Reichle, H. G., Jr.	LARC	Garstang, M.	NAG 1-848	5609
31	UNIV OF VIRGINIA	Jones, J. L.	LARC	Singer, S. F.	NAS 1-16550	5631
31	UNIV OF VIRGINIA	Drewry, J. W.	LARC	Garstang, M.	NCC 1-106	5635
31	UNIV OF VIRGINIA	Fox, K.	HQ-EL	Johnson, R. E.	NAGW 461	5626
31	UNIV OF WASHINGTON	Wales, R. O.	GSFC	Parks, G. K.	NAG 5-373	5740
31	UNIV OF WASHINGTON	Hall, F.	GSFC	Fritschen, L. J.	NAG 5-521	5741
31	UNIV OF WASHINGTON	Lau, W. K.	GSFC	Houze, R. A., Jr.	NAG 5-784	5744
31	UNIV OF WASHINGTON	Thiele, O. W.	GSFC	Hobbs, P. V.	NAG 5-886	5745
31	UNIV OF WASHINGTON	Wang, J. R.	GSFC	Katsaros, K. B.	NAG 5-943	5747
31	UNIV OF WASHINGTON	Reber, C.	GSFC	Holton, J. R.	NAS 5-26301	5789
31	UNIV OF WASHINGTON	Brown, I. D.	JSC	Brownlee, D. E.	NSG 9052	5808
31	UNIV OF WASHINGTON	Cooper, J. E.	LARC	Hartmann, D. L.	NAS 1-18157	5788
31	UNIV OF WASHINGTON	Christian, H. J.	MSFC	Baker, M. B.	NAG 8-61	5750
31	UNIV OF WASHINGTON	Jackman, C. H.	HQ-EE	Leovy, C. B.	NAGW 471	5763
31	UNIV OF WASHINGTON	Jackman, C. H.	HQ-EE	Holton, J. R.	NAGW 662	5764

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
31	UNIV OF WASHINGTON	Margitan, J. J.	HQ-EE	Hartmann, D. L.	NAGW 1160	5777
31	UNIV OF WASHINGTON	Fox, K.	HQ-EL	Tillman, J. E.	NAGW 1341	5785
31	UNIV OF WASHINGTON	Fox, K.	HQ-EL	Leovy, C. B.	NSG 7085	5806
31	UNIV OF WASHINGTON	Owens, F. C.	HQ-XE	Leovy, C. B.	NGT 00-050-231	5798
31	UNIV WISC-MADISON	Adler, R. F.	GSFC	Schlesinger, R. E.	NAG 5-23	5843
31	UNIV WISC-MADISON	Atlas, R. M.	GSFC	Johnson, D. R.	NAG 5-81	5844
31	UNIV WISC-MADISON	Pfaendtner, J.	GSFC	Wahba, G.	NAG 5-316	5846
31	UNIV WISC-MADISON	Atlas, R.	GSFC	Horn, L. H.	NAG 5-385	5847
31	UNIV WISC-MADISON	Cahalan, R.	GSFC	Weinman, J. A.	NAG 5-580	5848
31	UNIV WISC-MADISON	Uccellini, L.	GSFC	Smith, W. L.	NAG 5-742	5853
31	UNIV WISC-MADISON	Heaps, W. S.	GSFC	Roesler, F. L.	NAG 5-745	5854
31	UNIV WISC-MADISON	Whitehead, V.	JSC	Young, J. T.	NAS 9-17642	5894
31	UNIV WISC-MADISON	McDougal, D. S.	LARC	Suomi, V. E.	NAG 1-553	5832
31	UNIV WISC-MADISON	Owens, T. L.	LARC	Eloranta, E. W.	NAG 1-882	5833
31	UNIV WISC-MADISON	Keynton, R. J.	LARC	Suomi, V. E.	NAS 1-17688	5879
31	UNIV WISC-MADISON	Cooper, J. E.	LARC	Smith, W. L.	NAS 1-18272	5880
31	UNIV WISC-MADISON	Greene, W. M.	MSFC	Suomi, V. E.	NAS 8-34732	5888
31	UNIV WISC-MADISON	Christian, H. J.	MSFC	Martin, D.	NAS 8-35981	5889
31	UNIV WISC-MADISON	Greene, W. M.	MSFC	Smith, W. L.	NAS 8-36168	5890
31	UNIV WISC-MADISON	Greene, W. M.	MSFC	Menzel, W. P.	NAS 8-36169	5891
31	UNIV WISC-MADISON	Greene, W. M.	MSFC	Suomi, V. E.	NAS 8-36292	5892
31	UNIV WISC-MADISON	Greene, W. M.	MSFC	Anderson, C. E.	NAS 8-36547	5893
31	UNIV WISC-MADISON	Robertson, F.	MSFC	Diak, G.	NCC 8-11	5898
31	UNIV WISC-MADISON	Robertson, F.	MSFC	Diak, G.	NCC 8-12	5899
31	UNIV WISC-MADISON	Rosendhal, J. D.	HQ-E	Weinman, J. A.	NAGW 872	5872
31	UNIV WISC-MADISON	Jackman, C. H.	HQ-EE	Reinsel, G. C.	NAGW 756	5871
31	UNIV WISC-MADISON	Tuyahov, A. J.	HQ-EE	Martin, D. W.	NAGW 920	5874
31	UNIV WISC-MADISON	Prather, M. J.	HQ-EE	Hitchman, M. H.	NAGW 1411	5878
31	UNIV WISC-MADISON	Fox, K.	HQ-EL	Limaye, S. S.	NAGW 937	5875
31	UNIV WISC-MADISON	Fox, K.	HQ-EL	Sromov, L. A.	NGR 50-002-189	5900
31	UNIV WISC-MADISON	Owens, F. C.	HQ-LE	Smith, W. L.	NGT 00-050-031	5901
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-16305	5919
31	UNIV OF WYOMING	Owens, T. L.	LARC	Hoffman, D. J.	NAS 1-17735	5920
31	UNIV OF WYOMING	Maddrea, G. L.	LARC	Pepin, T.	NAS 1-18495	5921
31	UNIV OF WYOMING	Margitan, J. J.	HQ-EE	Hofmann, D. J.	NAGW 918	5917
31	UTAH STATE UNIV	Russell, J. M., III	LARC	Baker, D. J.	NAG 1-899	5451
31	UTAH STATE UNIV	Jones, C. T.	MSFC	Torr, M. R.	NAS 8-33992	5461
31	UTAH STATE UNIV	Duncan, B.	MSFC	Stone, N.	NAS 8-37110	5462
31	UTAH STATE UNIV	Brinton, H. C.	HQ-EL	Miller, K. L.	NAGW 689	5457
31	COLLEGE OF WM & MARY	Sullivan, E. M.	LARC	Benner, D. C.	NCC 1-43	5492
31	WASHINGTON UNIVERSTY	Browne, I. D.	JSC	Hohenberg, C. M.	NAG 9-7	3895
31	WASHINGTON UNIVERSTY	Brinton, H. C.	HQ-EL	Kahn, R.	NAGW 660	3905
31	YALE UNIVERSITY	Maier, E. J.	GSFC	Sofia, S.	NAG 5-736	2464
31	YALE UNIVERSITY	Uccellini, L. W.	GSFC	Smith, R. B.	NAG 5-871	2465
31	YALE UNIVERSITY	Fichel, B. G.	MSFC	Saltzman, B.	NAS 8-34903	2470
31	YALE UNIVERSITY	Kaufman, J. W.	MSFC	Saltzman, B.	NAS 8-36356	2471
32	ARIZONA STATE UNIV	Smith, B. F.	ARC	Greeley, R.	NCC 2-346	1253
32	ARIZONA STATE UNIV	Browne, I. D.	JSC	Buseck, P. R.	NAG 9-59	1228
32	ARIZONA STATE UNIV	Browne, I. D.	JSC	Larimer, J. W.	NAG 9-79	1229
32	ARIZONA STATE UNIV	Browne, I. D.	JSC	Moore, C. B.	NAG 9-183	1230
32	ARIZONA STATE UNIV	Browne, I. D.	JSC	Holloway, J. R.	NAG 9-237	1231
32	ARIZONA STATE UNIV	Devincenzi, D. L.	HQ-EB	Cronin, J. R.	NSG 7255	1259
32	ARIZONA STATE UNIV	Underwood, J.	HQ-EL	Malin, M. C.	NAGW 1	1232
32	ARIZONA STATE UNIV	Underwood, J.	HQ-EL	Greeley, R.	NAGW 132	1233
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Holloway, J. R.	NAGW 182	1234
32	ARIZONA STATE UNIV	Underwood, J. R.	HQ-EL	Fink, J.	NAGW 529	1236
32	ARIZONA STATE UNIV	Quaide, W. L.	HQ-EL	Greeley, R.	NAGW 580	1238
32	ARIZONA STATE UNIV	Underwood, J.	HQ-EL	Christensen, P. R.	NAGW 943	1239
32	ARIZONA STATE UNIV	Underwood, J. R.	HQ-EL	Greeley, R.	NAGW 1074	1240
32	ARIZONA STATE UNIV	Underwood, J. R.	HQ-EL	Christensen, P. R.	NAGW 1080	1241

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
32	ARIZONA STATE UNIV	Underwood, J. R.	HQ-EL	Sheridan, M. F.	NAGW 1115	1242
32	ARIZONA STATE UNIV	Underwood, J.	HQ-EL	Greeley, R.	NAGW 1224	1243
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Greeley, R.	NAGW 1306	1244
32	ARIZONA STATE UNIV	Underwood, J. R.	HQ-EL	Fink, J.	NAGW 1343	1245
32	ARIZONA STATE UNIV	Underwood, J. R.	HQ-EL	Christensen, P. R.	NAGW 1429	1247
32	ARIZONA STATE UNIV	Scott, D. H.	HQ-EL	Greeley, R.	NSG 7415	1260
32	ARIZONA STATE UNIV	Owens, F. C.	HQ-XE	Holloway, J.	NGT 00-050-301	1256
32	ARIZONA STATE UNIV	Owens, F. C.	HQ-LE	Malin, M. C.	NGT 03-001-802	1257
32	ARKANSAS COL	Gibson, E.	JSC	Bustin, R.	NAG 9-272	1440
32	BOSTON UNIVERSITY	Browne, I. D.	JSC	Treiman, A. H.	NAG 9-168	3429
32	BOSTON UNIVERSITY	Rummel, J. D.	HQ-EB	Margulis, L.	NGR 22-004-025	3434
32	BROWN UNIVERSITY	Browne, I. D.	JSC	Pieters, C. M.	NAG 9-184	4976
32	BROWN UNIVERSITY	Browne, I. D.	JSC	Rutherford, M. J.	NAG 9-239	4977
32	BROWN UNIVERSITY	Rosendhal, J. D.	HQ-E	Goettel, K. A.	NAGW 657	4980
32	BROWN UNIVERSITY	Baltuck, M.	HQ-EE	Pieters, C. M.	NAGW 1118	4987
32	BROWN UNIVERSITY	Mouginis, P. J.	HQ-EE	Pieters, C. M.	NASW 4048	4989
32	BROWN UNIVERSITY	Underwood, J.	HQ-EL	Pieters, C. M.	NAGW 28	4978
32	BROWN UNIVERSITY	Underwood, J. R.	HQ-EL	Head, J. W.	NAGW 137	4979
32	BROWN UNIVERSITY	Underwood, J.	HQ-EL	Schultz, P. H.	NAGW 705	4981
32	BROWN UNIVERSITY	Underwood, J. R.	HQ-EL	Head, J. W.	NAGW 713	4982
32	BROWN UNIVERSITY	Underwood, J.	HQ-EL	Pieters, C. M.	NAGW 748	4983
32	BROWN UNIVERSITY	Underwood, J. R.	HQ-EL	Schultz, P. H.	NAGW 855	4984
32	BROWN UNIVERSITY	Underwood, J. R.	HQ-EL	Head, J. W.	NAGW 1075	4985
32	BROWN UNIVERSITY	Underwood, J. R.	HQ-EL	Schultz, P. H.	NAGW 1076	4986
32	BROWN UNIVERSITY	Underwood, J.	HQ-EL	Head, J. W.	NGR 40-002-088	4990
32	BROWN UNIVERSITY	Underwood, J.	HQ-EL	Head, J. W.	NGR 40-002-116	4991
32	BROWN UNIVERSITY	Underwood, J. R.	HQ-EL	Head, J. W.	NSG 7570	4997
32	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Rutherford, M. J.	NSG 7589	4998
32	BROWN UNIVERSITY	Underwood, J. R.	HQ-EL	Parmentier, E. M.	NSG 7605	4999
32	BROWN UNIVERSITY	Owens, F. C.	HQ-XE	Head, J. W.	NGT 00-050-147	4993
32	BROWN UNIVERSITY	Owens, F. C.	HQ-XE	Rutherford, M. J.	NGT 00-050-229	4994
32	BROWN UNIVERSITY	Owens, F. C.	HQ-XE	Schultz, P. H.	NGT 00-050-325	4995
32	CALIF INST OF TECH	Welker, J. E.	GSFC	Hager, B. H.	NAG 5-315	1456
32	CALIF INST OF TECH	Welker, J. E.	GSFC	Hager, B. H.	NAG 5-819	1462
32	CALIF INST OF TECH	Frey, H. V.	GSFC	Hager, B. H.	NAG 5-842	1464
32	CALIF INST OF TECH	Mead, G. D.	GSFC	Hager, B. H.	NAS 5-27226	1501
32	CALIF INST OF TECH	Browne, I. D.	JSC	Wasserburg, G. J.	NAG 9-43	1474
32	CALIF INST OF TECH	Browne, I. D.	JSC	Albee, A. L.	NAG 9-185	1478
32	CALIF INST OF TECH	Browne, I. D.	JSC	Stopler, E. M.	NAG 9-236	1479
32	CALIF INST OF TECH	Phinney, W. C.	JSC	Wyllie, P.	NAG 9-294	1480
32	CALIF INST OF TECH	Underwood, J.	HQ-EL	Stevenson, D. J.	NAGW 185	1483
32	CALIF INST OF TECH	Underwood, J.	HQ-EL	Murray, B.	NAGW 1226	1492
32	CALIF INST OF TECH	Mahaffy, P. R.	HQ-EL	Muhleman, D. O.	NAGW 1432	1496
32	CALIF INST OF TECH	Underwood, J. R.	HQ-EL	Hager, B.	NAGW 1445	1498
32	CALIF INST OF TECH	Underwood, J.	HQ-EL	Ahrens, T. J.	NGL 05-002-105	1513
32	CALIF INST OF TECH	Underwood, J. R.	HQ-EL	Ahrens, T. J.	NSG 7129	1527
32	CALIF INST OF TECH	Tuyahov, A. J.	HQ-EL	Anderson, D. L.	NSG 7610	1529
32	CALIF INST OF TECH	Owens, F. C.	HQ-LE	Murray, B.	NGT 00-050-096	1520
32	CAL POLY ST U-POMONA	Scott, D. H.	HQ-EL	Rossbacher, L. A.	NAGW 715	1531
32	COLORADO STATE UNIV	Scott, D. H.	HQ-EL	Schumm, S. A.	NAGW 535	2288
32	COLUMBIA UNIVERSITY	Frey, H. V.	GSFC	Beavan, J.	NAG 5-799	4144
32	COLUMBIA UNIVERSITY	Welker, J. E.	GSFC	Watts, A. B.	NAG 5-881	4147
32	COLUMBIA UNIVERSITY	Walker, J. E.	GSFC	Cochran, J. R.	NAG 5-920	4148
32	COLUMBIA UNIVERSITY	Hampson, R. F.	HQ-EE	Broecker, W. S.	NAGW 667	4161
32	CORNELL UNIVERSITY	Frey, H. V.	GSFC	Brown, L. D.	NAG 5-779	4196
32	CORNELL UNIVERSITY	Frey, H. V.	GSFC	Turcotte, D. L.	NAG 5-860	4198
32	CORNELL UNIVERSITY	Oseroff, H.	GSFC	Bird, J. M.	NAS 5-28739	4231
32	CORNELL UNIVERSITY	Oseroff, H.	GSFC	Bloom, A. L.	NAS 5-28767	4232
32	CORNELL UNIVERSITY	Baltuck, M.	HQ-EE	Bird, J. M.	NAGW 1287	4225
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Thomas, P. C.	NAGW 111	4202

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
32	CORNELL UNIVERSITY	Underwood, J.	HQ-EL	Burns, J. A.	NAGW 310	4203
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Dermott, S. F.	NAGW 392	4204
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Nicholson, P. D.	NAGW 544	4206
32	CORNELL UNIVERSITY	Scott, D. H.	HQ-EL	Turcotte, D. L.	NAGW 797	4210
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Bassett, W. A.	NAGW 963	4212
32	CORNELL UNIVERSITY	Underwood, J.	HQ-EL	Squyres, S.	NAGW 1023	4214
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Turcotte, D. L.	NAGW 1083	4215
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Veverka, J.	NAGW 1221	4223
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Turcotte, D. L.	NAGW 1420	4226
32	CORNELL UNIVERSITY	Scott, D. H.	HQ-EL	Veverka, J.	NASW 3342	4234
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Sagan, C. E.	NGR 33-010-220	4240
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Veverka, J.	NSG 7156	4257
32	CORNELL UNIVERSITY	Underwood, J. R.	HQ-EL	Veverka, J.	NSG 7606	4258
32	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Jordan, T.	NGT 00-050-242	4244
32	CORNELL UNIVERSITY	Owens, F. C.	HQ-LE	Bloom, A. L.	NGT 33-010-801	4252
32	DARTMOUTH COLLEGE	Oseroff, H.	GSFC	Naslund, H. R.	NAS 5-28738	3981
32	DARTMOUTH COLLEGE	Mark, P. M.	HQ-EE	Birnie, R. W.	NASW 4049	3983
32	DARTMOUTH COLLEGE	Underwood, J. R.	HQ-EL	Brakenridge, G. R.	NAGW 1082	3979
32	HARVARD UNIVERSITY	Frey, H. V.	GSFC	Shapiro, I. I.	NAG 5-538	3447
32	HARVARD UNIVERSITY	Frey, H. V.	GSFC	O'connell, R. J.	NAG 5-840	3451
32	HARVARD UNIVERSITY	Welker, J. E.	GSFC	Bloxham, J.	NAG 5-918	3453
32	HARVARD UNIVERSITY	Rummel, J. D.	HQ-EB	Holland, A. D.	NAGW 599	3461
32	HARVARD UNIVERSITY	Rummel, J. D.	HQ-EB	Knoll, A. H.	NAGW 893	3463
32	HARVARD UNIVERSITY	Boyce, J. M.	HQ-EL	Cameron, A. G.	NGR 22-007-269	3473
32	HARVARD UNIVERSITY	Owens, F. C.	HQ-LE	Wood, J. A.	NGT 00-050-028	3476
32	HOWARD UNIVERSITY	Owens, F. C.	HQ-LE	Dey, B.	NGT 09-011-804	2573
32	HUMBOLDT STATE UNIV	Baltuck, M.	HQ-EE	Burke, R. M.	NGT 00-050-275	1567
32	INDIANA U-BLOOMINGTN	Browne, I. D.	JSC	Basu, A.	NSG 9077	2987
32	JOHNS HOPKINS UNIV	Welker, J.	GSFC	Marsh, B. D.	NAG 5-32	3232
32	JOHNS HOPKINS UNIV	Phinney, W. C.	JSC	Depaor, D.	NAG 9-217	3244
32	JOHNS HOPKINS UNIV	Rosendhal, J. D.	HQ-E	Olson, P. L.	NAGW 820	3250
32	KANSAS STATE UNIV	Scott, D. H.	HQ-EL	Underwood, J. R., Jr.	NAGW 510	3125
32	KANSAS STATE UNIV	Scott, D. H.	HQ-EL	Underwood, J. R.	NAGW 1111	3126
32	LA ST U&A&M COL-BRGE	Phinney, W. C.	JSC	Byerly, G. R.	NAG 9-136	3182
32	LA ST U&A&M COL-BRGE	Joyce, A. T.	NSTL	Huh, O. K.	NAG13-4	3187
32	LA ST U&A&M COL-BRGE	Joyce, A. T.	NSTL	Hudhall, W. H.	NAG13-5	3188
32	MASS INST OF TECH	Kouns, C. W.	GSFC	Molnar, P.	NAG 5-300	3520
32	MASS INST OF TECH	Welker, J. E.	GSFC	Parsons, B.	NAG 5-415	3521
32	MASS INST OF TECH	Frey, H. V.	GSFC	Jordan, T. H.	NAG 5-459	3522
32	MASS INST OF TECH	Choudhury, B.	GSFC	Eagleson, P. S.	NAG 5-510	3524
32	MASS INST OF TECH	Welker, J. E.	GSFC	Royden, L. H.	NAG 5-532	3525
32	MASS INST OF TECH	Frey, H. V.	GSFC	King, R. W.	NAG 5-737	3529
32	MASS INST OF TECH	Frey, H. V.	GSFC	Li, V. C.	NAG 5-740	3530
32	MASS INST OF TECH	Frey, H. V.	GSFC	Toksoz, M. N.	NAG 5-753	3532
32	MASS INST OF TECH	Welker, J.	GSFC	Molnar, P.	NAG 5-795	3533
32	MASS INST OF TECH	Frey, H. V.	GSFC	Solomon, S. C.	NAG 5-814	3534
32	MASS INST OF TECH	Wildes, W.	GSFC	Niell, A. E.	NAS 5-29120	3596
32	MASS INST OF TECH	Browne, I. D.	JSC	Grove, T. L.	NAG 9-302	3560
32	MASS INST OF TECH	Underwood, J. R.	HQ-EL	French, R. G.	NAGW 656	3568
32	MASS INST OF TECH	Underwood, J. R.	HQ-EL	Wisdom, J.	NAGW 706	3570
32	MASS INST OF TECH	Underwood, J. R.	HQ-EL	Burns, R. G.	NAGW 1078	3578
32	MASS INST OF TECH	Underwood, J.	HQ-EL	Solomon, S. C.	NSG 7297	3638
32	MASS INST OF TECH	Underwood, J. R.	HQ-EL	Burns, R. G.	NSG 7604	3642
32	MICHIGAN TECH UNIV	Owens, F. C.	HQ-LB	Bornhorst, T. J.	NGT 23-001-800	3709
32	MISSISSIPPI STATE U	McCaleb, R. C.	NSTL	Crochet, R. A.	NAS13-321	3868
32	MORGAN STATE UNIV	Wasilewski, P. J.	GSFC	Isuk, E. E.	NAG 5-735	3274
32	NE LOUISIANA UNIV	Underwood, J.	HQ-EL	Dehon, R. A.	NAGW 1225	3194
32	NE LOUISIANA UNIV	Underwood, J. R.	HQ-EL	Dehon, R. A.	NAGW 1422	3195
32	NE LOUISIANA UNIV	Scott, D. H.	HQ-EL	Dehon, R.	NSG 7534	3196
32	NORTHERN ARIZONA U	Boyce, J. M.	HQ-EL	Mullens, L. J.	NAGW 928	1263

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
32	NORTHERN ARIZONA U	Boyce, J. M.	HQ-EL	Holt, H. E.	NAGW 979	1264
32	NORTHERN ARIZONA U	Underwood, J. R.	HQ-EL	Swann, G. A.	NAGW 982	1265
32	NORTHWESTERN UNIV	Frey, H. V.	GSFC	Stein, S. A.	NAG 5-885	2832
32	NORTHWESTERN UNIV	Welker, J. E.	GSFC	Speed, R. C.	NAG 5-1008	2834
32	OHIO STATE UNIV	Welker, J.	GSFC	Rapp, R. H.	NGR 36-008-161	4672
32	OHIO STATE UNIV	Frey, H. V.	GSFC	Mueller, I. I.	NSG 5265	4679
32	OREGON STATE UNIV	Browne, I. D.	JSC	Schmitt, R. A.	NAG 9-63	4796
32	OREGON STATE UNIV	Underwood, J. R.	HQ-EL	Komar, P. D.	NSG 7178	4814
32	OREGON STATE UNIV	Owens, F. C.	HQ-XE	Frenkel, R. E.	NGT 00-050-244	4810
32	OREGON STATE UNIV	Owens, F. C.	HQ-XE	Frenkel, R.	NGT 00-050-351	4811
32	OREGON STATE UNIV	Owens, F. C.	HQ-LE	Frenkel, R.	NGT 38-058-800	4812
32	PRINCETON UNIVERSITY	Gurney, R. J.	GSFC	Wood, E. F.	NAG 5-491	4028
32	PRINCETON UNIVERSITY	Phinney, W. C.	JSC	Onstott, T. C.	NAG 9-190	4036
32	PRINCETON UNIVERSITY	Owens, F. C.	HQ-XE	Wood, E. F.	NGT 00-050-153	4051
32	PURDUE UNIVERSITY	Baltuck, M.	HQ-EE	Hinze, W. J.	NAGW 736	3018
32	RENSSELAER POLY-NY	Underwood, J. R.	HQ-EL	Gaffey, M. J.	NAGW 642	4299
32	RICE UNIVERSITY	Browne, I. D.	JSC	Heymann, D.	NAG 9-88	5115
32	RUTGERS ST U-N BRNSK	Browne, I. D.	JSC	Hewins, R. H.	NAG 9-35	4059
32	RUTGERS ST U-N BRNSK	Browne, I. D.	JSC	Delaney, J. S.	NAG 9-304	4060
32	SAN JOSE STATE UNIV	Browne, I. D.	JSC	Englert, P. A.	NAG 9-232	1588
32	SAN JOSE STATE UNIV	Scott, D. H.	HQ-EL	Harden, D.	NAGW 1052	1589
32	SO DAKOTA SCHL MINES	Browne, I. D.	JSC	Papike, J. J.	NAG 9-22	5035
32	GEORGIA INST OF TECH	Johnson, D.	MSFC	Justus, C. G.	NAG 8-78	2719
32	SO ILL UNIV-CARBONDL	Underwood, J. R.	HQ-EL	Kochel, R. C.	NAGW 707	2841
32	SOUTHERN METHODIST U	Baltuck, M.	HQ-EE	Phillips, R. J.	NAGW 911	5140
32	SOUTHERN METHODIST U	Underwood, J. R.	HQ-EL	Phillips, R. J.	NAGW 459	5139
32	SOUTHERN METHODIST U	Underwood, J. R.	HQ-EL	Phillips, R. J.	NAGW 1085	5141
32	STANFORD UNIVERSITY	Marais, D. D.	ARC	Lowe, D. R.	NCA 2-332	1719
32	STANFORD UNIVERSITY	Welker, J. E.	GSFC	Nur, A.	NAG 5-926	1645
32	STANFORD UNIVERSITY	Underwood, J. R.	HQ-EL	Tyler, G. L.	NGR 05-020-649	1769
32	STATE UNIV NY-ALBANY	Browne, I. D.	JSC	Delano, J. W.	NAG 9-78	4318
32	STATE UNIV NY-ALBANY	Browne, I. D.	JSC	Berkley, J. L.	NAG 9-82	4319
32	STATE UNIV NY-ALBANY	Phinney, W. C.	JSC	Hanson, G. N.	NAG 9-85	4320
32	STATE U NY-BINGHAMTN	Welker, J. E.	GSFC	Dickman, S. R.	NAG 5-145	4333
32	STATE U NY-BINGHAMTN	Owens, F. C.	HQ-LB	Dickman, S. R.	NGT 33-188-804	4336
32	STATE UNIV NY-BUFFAL	Scott, D. H.	HQ-EL	King, J. S.	NGR 33-015-108	4346
32	STATE U NY-STONY BRK	Boyce, J. M.	HQ-EL	Thurber, C. H.	NAGW 760	4360
32	STATE U NY-STONY BRK	Underwood, J. R.	HQ-EL	Lissauer, J.	NAGW 1107	4362
32	STATE U NY-STONY BRK	Boyce, J. M.	HQ-EL	Owens, T.	NSG 7553	4374
32	SUL ROSS STATE UNIV	Underwood, J. R.	HQ-EL	Whitford-stark H, J. L.	NAGW 605	5143
32	TEXAS A&M UNIVERSITY	Welker, J. E.	GSFC	Gammon, R. W.	NAG 5-94	5163
32	TEXAS A&M UNIVERSITY	Flinn, E. A.	HQ-EE	Hilde, T. W.	NAGW 1304	5193
32	TEXAS A&M UNIVERSITY	Scott, D. H.	HQ-EL	Anderson, D. M.	NAGW 651	5188
32	UNIV ALA-HUNTSVILLE	Lehoczkzy, S. L.	MSFC	Rosenberger, F. E.	NAG 8-704	1123
32	UNIV ALA-HUNTSVILLE	West, G. S.	MSFC	Hung, R. J.	NAS 8-33726	1141
32	UNIV OF ARIZONA	Welker, J.	GSFC	Richardson, R. M.	NAG 5-326	1287
32	UNIV OF ARIZONA	Welker, J. E.	GSFC	Chase, C. G.	NAG 5-444	1290
32	UNIV OF ARIZONA	Browne, I. D.	JSC	Jull, A. J.	NAG 9-233	1313
32	UNIV OF ARIZONA	Browne, I. D.	JSC	Wolfe, J. C.	NAG 9-240	1314
32	UNIV OF ARIZONA	Phinney, W. C.	MSFC	Patchett, P. J.	NAG 9-135	1312
32	UNIV OF ARIZONA	Underwood, J.	HQ-EL	Baker, V. R.	NAGW 285	1318
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Melosh, H. J.	NAGW 428	1320
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Fink, U.	NAGW 942	1339
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Greenberg, R. J.	NAGW 944	1340
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Porco, C. C.	NAGW 960	1341
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Greenberg, R. J.	NAGW 1029	1344
32	UNIV OF ARIZONA	Underwood, J.	HQ-EL	Singer, R. B.	NAGW 1059	1346
32	UNIV OF ARIZONA	Evans, L. G.	HQ-EL	Boynton, W. V.	NAGW 1069	1347
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Lewis, J. S.	NAGW 1146	1351
32	UNIV OF ARIZONA	Boyce, J. M.	HQ-EL	Gehrels, T.	NAGW 1147	1352

**NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING**

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
32	UNIV OF ARIZONA	Evans, L. G.	HQ-EL	Tomasko, M.	NAGW 1280	1362
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Vickery, A. M.	NAGW 1360	1370
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Croft, S. K.	NAGW 1414	1373
32	UNIV OF ARIZONA	Underwood, J. R.	HQ-EL	Hood, L. L.	NSG 7020	1429
32	UNIV OF ARIZONA	Underwood, J.	HQ-EL	Strom, R. G.	NSG 7146	1434
32	UNIV OF ARIZONA	Underwood, J.	HQ-EL	Levy, E. H.	NSG 7419	1436
32	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Melosh, H. J.	NGT 00-050-234	1409
32	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Boynton, W. V.	NGT 00-050-235	1410
32	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Hubbard, W. B.	NGT 00-050-049	1403
32	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Hunten, D. M.	NGT 00-050-050	1404
32	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Levy, E. H.	NGT 03-002-806	1425
32	UNIV ARKANSAS-FAYETV	Browne, I. D.	JSC	Sears, D. W.	NAG 9-81	1447
32	UNIV CALIF-BERKELEY	Underwood, J.	HQ-EL	Jeanloz, R.	NAGW 604	1828
32	UNIV CALIF-DAVIS	Pollack, J. B.	ARC	White, B. R.	NCC 2-252	1938
32	UNIV CALIF-DAVIS	Oseroft, H.	GSFC	Finnerty, A. A.	NAS 5-28754	1929
32	UNIV CALIF-L ANGELES	Welker, J.	GSFC	Schubert, G.	NAG 5-152	1988
32	UNIV CALIF-L ANGELES	Frey, H. V.	GSFC	Jackson, D. D.	NAG 5-447	1989
32	UNIV CALIF-L ANGELES	Welker, J. E.	GSFC	Kaula, W.	NAG 5-1040	1997
32	UNIV CALIF-L ANGELES	Browne, I. D.	JSC	Wasson, J. T.	NAG 9-40	2003
32	UNIV CALIF-L ANGELES	Phinney, W. C.	JSC	Wasson, J. T.	NAG 9-96	2005
32	UNIV CALIF-L ANGELES	Rummel, J. D.	HQ-EB	Schopf, J. W.	NAGW 825	2016
32	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HQ-EB	Kaplan, I. R.	NGR 05-007-221	2054
32	UNIV CALIF-L ANGELES	Rummel, J. D.	HQ-EB	Schopf, J. W.	NGR 05-007-407	2055
32	UNIV CALIF-L ANGELES	Scott, D. H.	HQ-EL	Paige, D. A.	NAGW 1065	2022
32	UNIV CALIF-L ANGELES	Underwood, J.	HQ-EL	Kaula, W. M.	NGL 05-007-002	2051
32	UNIV CALIF-L ANGELES	Underwood, J. R.	HQ-EL	Schubert, G.	NSG 7315	2070
32	UNIV CALIF-SAN DIEGO	Welker, J. E.	GSFC	Spiess, F. N.	NAG 5-320	2083
32	UNIV CALIF-SAN DIEGO	Langel, R. A.	GSFC	Backus, G. E.	NAG 5-818	2085
32	UNIV CALIF-SAN DIEGO	Langel, R.	GSFC	Backus, G.	NAG 5-883	2087
32	UNIV CALIF-SAN DIEGO	Frey, H. V.	GSFC	Agnew, D. C.	NAG 5-905	2089
32	UNIV CALIF-SAN DIEGO	Frey, H.	GSFC	Gaskell, C.	NAG 5-1023	2092
32	UNIV CALIF-SAN DIEGO	Browne, I. D.	JSC	Lugmair, G. W.	NAG 9-49	2105
32	UNIV CALIF-SAN DIEGO	Browne, I. D.	JSC	Thiemens, M. H.	NAG 9-83	2107
32	UNIV CALIF-SAN DIEGO	Rummel, J. D.	HQ-EB	Miller, S. R.	NAGW 20	2110
32	UNIV CALIF-SAN DIEGO	Scott, D. H.	HQ-EL	Alfven, H.	NSG 7102	2160
32	UNIV CALIF-S BARBARA	Chang, A. T.	GSFC	Dozier, J.	NAG 5-328	2183
32	UNIV CALIF-S BARBARA	Browne, I. D.	JSC	Cisowski, S. M.	NAG 9-224	2187
32	UNIV CALIF-S BARBARA	Browne, I. D.	JSC	Spera, F. J.	NAG 9-238	2188
32	UNIV CALIF-S BARBARA	Baltuck, M.	HQ-EE	Crowell, J. C.	NAGW 1246	2195
32	UNIV CALIF-S BARBARA	Underwood, J.	HQ-EL	Peale, S. J.	NGR 05-010-062	2201
32	UNIV CALIF-S BARBARA	Owens, F. C.	HQ-XE	Simonett, D. S.	NGT 05-010-804	2203
32	UNIV CALIF-S CRUZ	Frey, H. V.	GSFC	Ward, S. N.	NAG 5-750	2204
32	UNIV CALIF-S CRUZ	Phinney, W. C.	JSC	Collerson, K. D.	NAG 9-191	2205
32	UNIV CALIF-S CRUZ	Underwood, J. R.	HQ-EL	Bridges, F.	NAGW 590	2206
32	UNIV OF CHICAGO	Bindschadler, R. A.	GSFC	MacAyeal, D. R.	NAG 5-394	2848
32	UNIV OF CHICAGO	Browne, I. D.	JSC	Anders, E.	NAG 9-52	2858
32	UNIV OF CHICAGO	Browne, I. D.	JSC	Grossman, L.	NAG 9-54	2859
32	UNIV OF CHICAGO	Phinney, W. C.	JSC	Richter, F. M.	NAG 9-67	2860
32	UNIV OF CHICAGO	Phinney, W. C.	JSC	Wickham, S.	NAG 9-296	2862
32	UNIV OF CHICAGO	Owens, F. C.	HQ-LE	Raup, D. M.	NGT 14-020-803	2904
32	UNIV COLORADO-BOLDR	Frey, H. V.	GSFC	Wahr, J.	NAG 5-485	2322
32	UNIV COLORADO-BOLDR	Kouns, C. W.	GSFC	Benton, E.	NAS 5-29323	2399
32	UNIV COLORADO-BOLDR	Wickland, D. E.	HQ-EE	Kruse, F. A.	NAGW 1143	2378
32	UNIV COLORADO-BOLDR	Baltuck, M.	HQ-EE	Goetz, A. F.	NAGW 1183	2380
32	UNIV COLORADO-BOLDR	Baltuck, M.	HQ-EE	Atkinson, W. W.	NAGW 1293	2386
32	UNIV COLORADO-BOLDR	Underwood, J. R.	HQ-EL	Esposito, L. W.	NAGW 769	2358
32	UNIV COLORADO-BOLDR	Underwood, J. R.	HQ-EL	Jakosky, B.	NAGW 771	2359
32	UNIV COLORADO-BOLDR	Underwood, J. R.	HQ-EL	Lee, S. W.	NAGW 1378	2387
32	UNIV OF FLORIDA	Phinney, W. C.	JSC	Gilbert, J. A.	NAG 9-91	2637
32	UNIV OF HAWAII-MANOA	Baltuck, M.	HQ-EE	Mark, P. J.	NAGW 1162	2790

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
32	UNIV OF HAWAII-MANOA	Murphy, R.	HQ-EE	Singer, R. B.	NASW 4018	2802
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	Fanale, F. P.	NAGW 133	2774
32	UNIV OF HAWAII-MANOA	Scott, D. H.	HQ-EL	Hawke, B. R.	NAGW 237	2775
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	Mark, P. M.	NAGW 437	2776
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Morrison, D.	NAGW 498	2777
32	UNIV OF HAWAII-MANOA	Underwood, J.	HQ-EL	Fanale, F. P.	NAGW 583	2778
32	UNIV OF HAWAII-MANOA	Underwood, J.	HQ-EL	McCord, T. B.	NAGW 589	2779
32	UNIV OF HAWAII-MANOA	Underwood, J.	HQ-EL	Fanale, F. P.	NAGW 633	2780
32	UNIV OF HAWAII-MANOA	Underwood, J., Jr.	HQ-EL	Bell, J. F.	NAGW 712	2781
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	Gradie, J. C.	NAGW 927	2786
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Hawke, B. R.	NAGW 1053	2788
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	Mouginis Mark, P. J.	NAGW 1084	2789
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	Mouginis Mark, P. J.	NAGW 1345	2793
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	Zisk, S. H.	NAGW 1385	2795
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	Lucey, P. G.	NAGW 1421	2796
32	UNIV OF HAWAII-MANOA	Underwood, J. R.	HQ-EL	McCord, T. B.	NSG 7312	2811
32	UNIV OF HAWAII-MANOA	Owens, F. C.	HQ-LE	Fanale, F. P.	NGT 00-050-104	2809
32	UNIV OF HAWAII-MANOA	Owens, F. C.	HQ-LE	Sinton, J. M.	NGT 12-004-801	2810
32	UNIV HOUSTON-HOUSTON	Welker, J. E.	GSFC	Burke, K.	NAG 5-585	5226
32	UNIV HOUSTON-HOUSTON	Phinney, W. C.	JSC	Elthon, D.	NAG 9-212	5239
32	UNIV HOUSTON-HOUSTON	Rummel, J. D.	HQ-EB	Oro, J.	NGR 44-005-002	5260
32	UNIV HOUSTON-HOUSTON	Underwood, J.	HQ-EL	Woronow, A.	NAGW 439	5249
32	UNIV ILLINOIS-CHICGO	Browne, I. D.	JSC	Davis, A. M.	NAG 9-111	2920
32	UNIV ILLINOIS-URBANA	Oseroff, H.	GSFC	Iverson, L.	NAS 5-28781	2950
32	UNIV MARYLAND-COL PK	Freg, H.	GSFC	Bell, R. A.	NAG 5-245	3303
32	UNIV MARYLAND-COL PK	Bell, R.	GSFC	McLellan, E.	NAG 5-968	3340
32	UNIV MARYLAND-COL PK	Middleton, E. M.	GSFC	Goward, S. N.	NCC 5-26	3387
32	UNIV MARYLAND-COL PK	Cressy, P. J.	GSFC	Sommer, S. E.	NSG 5047	3411
32	UNIV MARYLAND-COL PK	Bell, R.	GSFC	Chang, L. L.	NSG 5423	3415
32	UNIV MARYLAND-COL PK	Scott, D. H.	HQ-EL	McFadden, L. A.	NAGW 562	3356
32	UNIV OF MASS-AMHERST	Phinney, W. C.	JSC	McGill, G. E.	NAG 9-75	3655
32	UNIV OF MASS-AMHERST	Rummel, J. D.	HQ-EB	Irvine, W. M.	NAGW 436	3658
32	UNIV OF MASS-AMHERST	Underwood, J. R.	HQ-EL	McGill, G. E.	NAGW 1079	3661
32	UNIV OF MASS-AMHERST	Underwood, J.	HQ-EL	Condit, C. D.	NAGW 1236	3663
32	UNIV OF MASS-AMHERST	Underwood, J.	HQ-EL	McGill, G. E.	NGR 22-010-076	3669
32	UNIV OF MASS-AMHERST	Owens, F. C.	HQ-XE	Hubert, J.	NGT 00-050-161	3671
32	UNIV OF MIAMI	Welker, J. E.	GSFC	Harrison, C. G.	NAG 5-414	2659
32	UNIV OF MIAMI	Frey, H. V.	GSFC	Harrison, C. G.	NAG 5-741	2660
32	UNIV OF MIAMI	Oseroff, H.	GSFC	Harrison, C. G.	NAS 5-28745	2667
32	UNIV OF MIAMI	Owens, F. C.	HQ-XE	Harrison, C. A.	NGT 00-070-010	2674
32	UNIV MICH-ANN ARBOR	Garvin, J. B.	GSFC	Ulaby, F. T.	NAG 5-843	3740
32	UNIV MICH-ANN ARBOR	Quaide, W.	HQ-EL	Killeen, T. L.	NASW 4200	3782
32	U MINN-MNPLS-ST PAUL	Welker, J. E.	GSFC	Yuen, D. A.	NAG 5-770	3822
32	U MINN-MNPLS-ST PAUL	Browne, I. D.	JSC	Pepin, R. O.	NAG 9-60	3827
32	U MINN-MNPLS-ST PAUL	Rosendhal, J. D.	HQ-E	Yuen, D. A.	NAGW 1008	3831
32	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-XE	Yuen, D. A.	NGT 00-050-200	3846
32	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-LE	Alexander, E. C., Jr.	NGT 25-001-800	3850
32	UNIV OF NEVADA-RENO	Oseroff, H.	GSFC	Taranik, J. V.	NAS 5-28765	3965
32	UNIV OF NEVADA-RENO	Baltuck, M.	HQ-EE	Mouat, D. A.	NAGW 913	3963
32	UNIV OF NEVADA-RENO	Tuyahov, A. J.	HQ-EE	Taranik, J. V.	NAGW 923	3964
32	UNIV OF NEVADA-RENO	Murphy, R.	HQ-EE	Taranik, J. V.	NASW 4050	3966
32	UNIV OF NEVADA-RENO	Owens, F. C.	HQ-XE	Taranik, J. V.	NGT 00-050-157	3969
32	UNIV OF NEW MEXICO	Browne, I. D.	JSC	Keil, K.	NAG 9-30	4098
32	UNIV OF NEW MEXICO	Browne, I. D.	JSC	Rietmeijer, F. J.	NAG 9-160	4099
32	UNIV OF NEW MEXICO	Underwood, J.	HQ-EL	Elston, W. E.	NGR 32-004-062	4103
32	UNIV OF NEW MEXICO	Owens, F. C.	HQ-LE	Morain, S. A.	NGT 00-070-003	4104
32	UNIV OF NEW MEXICO	Owens, F. C.	HQ-LE	Kleil, K.	NGT 32-004-771	4106
32	UNIV OREGON-EUGENE	Coates, R. J.	GSFC	Humphreys, E. D.	NAG 5-755	4819
32	UNIV SO CAROLINA-COL	Browne, I. D.	JSC	Shervais, J. W.	NAG 9-169	5025
32	UNIV OF SOUTHERN CAL	Mahaffy, P.	HQ-EL	Iwanczyk, J. S.	NAGW 1401	2261

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
32	UNIV TENNESSEE-KNOXV	Browne, I. D.	JSC	McSween, H. Y.	NAG 9-58	5064
32	UNIV TENNESSEE-KNOXV	Browne, I. D.	JSC	Taylor, L. A.	NAG 9-62	5065
32	UNIV TENNESSEE-KNOXV	Phinney, W. C.	JSC	Taylor, L. A.	NAG 9-73	5066
32	UNIV TENNESSEE-KNOXV	Owens, F. C.	HQ-LE	Taylor, L.	NGT 43-001-808	5076
32	UNIV TEXAS-AUSTIN	Welker, J. E.	GSFC	Schutz, B.	NAG 5-528	5292
32	UNIV TEXAS-AUSTIN	Frey, H. V.	GSFC	Shelus, P. J.	NAG 5-754	5295
32	UNIV TEXAS-AUSTIN	Frey, H. V.	GSFC	Wilson, C. R.	NAG 5-756	5296
32	UNIV TEXAS-AUSTIN	Frey, H. V.	GSFC	Schutz, B. E.	NAG 5-757	5297
32	UNIV TEXAS-AUSTIN	Welker, J. E.	GSFC	Tapley, B. D.	NAG 5-787	5299
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NAG 5-940	5300
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NAG 5-1021	5304
32	UNIV TEXAS-AUSTIN	Welker, J. E.	GSFC	Sclater, J. G.	NAG 5-1041	5305
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NAS 5-27344	5326
32	UNIV TEXAS-AUSTIN	Visentine, J. T.	JSC	Munk, P.	NAG 9-198	5308
32	UNIV TEXAS-AUSTIN	Underwood, J. R.	HQ-EL	Nakamura, Y.	NAGW 1064	5322
32	UNIV TEXAS-AUSTIN	Underwood, J. R.	HQ-EL	Smoluchowski, R.	NSG 7505	5366
32	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Wilson, C. R.	NGT 00-070-029	5360
32	UNIV TEXAS-DALLAS	Baltuck, M.	HQ-EE	Stern, R. J.	NAGW 1161	5379
32	UNIV OF UTAH	Oseroff, H.	GSFC	Currey, D. R.	NAS 5-28753	5447
32	UNIV OF VIRGINIA	Underwood, J.	HQ-EL	Johnson, R. E.	NAGW 186	5625
32	UNIV OF VIRGINIA	Scott, D. H.	HQ-EL	Roberts, W. W.	NAGW 929	5628
32	UNIV OF VIRGINIA	Underwood, J. R.	HQ-EL	Howard, A. D.	NSG 7572	5649
32	UNIV OF WASHINGTON	Phinney, W. C.	JSC	McCallum, I. S.	NAG 9-84	5756
32	UNIV OF WASHINGTON	Tuyahov, A. J.	HQ-EE	Adams, J. B.	NAGW 85	5759
32	UNIV OF WASHINGTON	Wickland, D. E.	HQ-EE	Adams, J. B.	NAGW 1135	5776
32	UNIV OF WASHINGTON	Baltuck, M.	HQ-EE	Gillespie, A. R.	NAGW 1317	5782
32	UNIV OF WASHINGTON	Baltuck, M.	HQ-EE	Adams, J. B.	NAGW 1319	5783
32	UNIV OF WASHINGTON	Evans, D.	HQ-EE	Adams, J. B.	NASW 4016	5791
32	UNIV OF WASHINGTON	Underwood, J. R.	HQ-EL	Holsapple, K. A.	NAGW 328	5761
32	UNIV OF WASHINGTON	Underwood, J. R.	HQ-EL	Adams, J. B.	NAGW 1081	5774
32	UNIV OF WASHINGTON	Underwood, J.	HQ-EL	Adams, J. B.	NSG 7173	5807
32	UNIV WISC-MADISON	Phinney, W. C.	JSC	Brown, P. E.	NAG 9-189	5867
32	UTAH STATE UNIV	Knott, W. M.	KSC	Salisbury, F. B.	NAG10-14	5458
32	WASHINGTON ST UNIV	Baltuck, M.	HQ-EE	Arvidson, R. E.	NAGW 1358	5813
32	WASHINGTON ST UNIV	Boyce, J. M.	HQ-EL	Arvidson, R. E.	NASW 4125	5816
32	WASHINGTON UNIVERSTY	Browne, I. D.	JSC	Walker, R. M.	NAG 9-55	3896
32	WASHINGTON UNIVERSTY	Browne, I. D.	JSC	Haskin, L. A.	NAG 9-56	3897
32	WASHINGTON UNIVERSTY	Phinney, W. C.	JSC	Dymek, R. F.	NAG 9-98	3898
32	WASHINGTON UNIVERSTY	Phinney, W. C.	JSC	Bowring, S. A.	NAG 9-223	3899
32	WASHINGTON UNIVERSTY	Phinney, W. C.	JSC	Podosek, F.	NAG 9-292	3900
32	WASHINGTON UNIVERSTY	Underwood, J.	HQ-EL	McKinnon, W. B.	NAGW 432	3902
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HQ-EL	Walker, R. M.	NAGW 608	3904
32	WASHINGTON UNIVERSTY	Scott, D. H.	HQ-EL	Arvidson, R. E.	NSG 7087	3924
32	WASHINGTON UNIVERSTY	Boyce, J. M.	HQ-EL	Arvidson, R. E.	NSG 7545	3926
32	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Podosek, F.	NGT 00-050-181	3916
32	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Arvidson, R. E.	NGT 00-050-289	3919
32	WELLESLEY COLLEGE	Underwood, J.	HQ-EL	French, R. G.	NAGW 1368	3674
32	WESLEYAN UNIVERSITY	Boyce, J. M.	HQ-EL	Patton, P. C.	NAGW 244	2459
32	WOODSHOLE OCEAN INST	Phinney, W. C.	JSC	Kurz, M. D.	NAG 9-69	3681
33	CITY UNIV N Y SYSTEM	Richman, J. G.	HQ-EE	Pierson, W. J.	NAGW 690	4121
33	COLUMBIA UNIVERSITY	Richman, J. G.	HQ-EE	Cane, M. A.	NAGW 916	4165
33	COLUMBIA UNIVERSITY	Thomas, R. H.	HQ-EE	Jacobs, S. S.	NAGW 1344	4166
33	FLORIDA STATE UNIV	Richman, J. G.	HQ-EE	O'brien, J. J.	NAGW 985	2607
33	FLORIDA STATE UNIV	Thomas, R. H.	HQ-EE	O'brien, J. J.	NGT 10-004-800	2614
33	FLORIDA STATE UNIV	Owens, F. C.	HQ-XE	Fuelberg, H. E.	NGT 00-070-095	2613
33	FLORIDA STATE UNIV	Owens, F. C.	HQ-LE	Iverson, R. L.	NGT 00-050-042	2610
33	HOFSTRA UNIVERSITY	Richman, J. G.	HQ-EE	Weissman, D. E.	NAGW 468	4261
33	HOWARD UNIVERSITY	Magolis, M.	HQ-U	Dey, B.	NAGW 898	2567
33	INDIANA UNIV OF PA	Hoge, F. E.	GSFC	Berry, R. E.	NAG 5-641	4849
33	INDIANA UNIV OF PA	Hoge, F. E.	GSFC	Berry, R. E.	NAG 5-650	4850

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
33	JOHNS HOPKINS UNIV	Patzert, W. C.	HQ-EE	Gray, E. P.	NAGW 574	3247
33	MASS INST OF TECH	Richman, J. G.	HQ-EE	Wunsch, C.	NAGW 1048	3576
33	MASS INST OF TECH	Richman, J. G.	HQ-EE	Melville, W. K.	NAGW 1272	3583
33	MASS INST OF TECH	Owens, F. C.	HQ-XE	Melville, W. K.	NGT 00-050-292	3626
33	NEW YORK UNIVERSITY	Yoder, J. A.	HQ-EE	Volk, T.	NAGW 850	4278
33	OREGON STATE UNIV	Richman, J. G.	HQ-EE	Chelton, D. B.	NAGW 730	4798
33	OREGON STATE UNIV	Yoder, J. A.	HQ-EE	Chelton, D. B.	NAGW 869	4799
33	OREGON STATE UNIV	Richman, J. G.	HQ-EE	Chelton, D. B.	NAGW 1123	4802
33	OREGON STATE UNIV	Yoder, J. A.	HQ-EE	Strub, P. T.	NAGW 1251	4804
33	OREGON STATE UNIV	Richman, J. G.	HQ-EE	Bennett, A. F.	NAGW 1305	4806
33	OREGON STATE UNIV	Yoder, J. A.	HQ-EE	Abbott, M. R.	NAGW 1316	4807
33	PENN STATE U-UNIV PK	Thomas, R. H.	HQ-EE	Crane, R. G.	NAGW 1042	4899
33	ROCHESTER INST TECH	Richman, J. G.	HQ-EE	Sciremammano, F.	NAGW 888	4307
33	STANFORD UNIVERSITY	Jezek, K. C.	HQ-EE	Vesecky, J.	NAGW 628	1657
33	TEXAS A&M UNIVERSITY	Yoder, J. A.	HQ-EE	Hofmann, E. E.	NAGW 852	5189
33	TEXAS A&M UNIVERSITY	Richman, J. G.	HQ-EE	Nowlin, W. D.	NAGW 1109	5191
33	UNIV ALASKA-FAIRBNKS	Oseroff, H.	GSFC	Royer, T. C.	NAS 5-28762	1203
33	UNIV ALASKA-FAIRBNKS	Jezek, K. C.	HQ-EE	Weller, G.	NAGW 932	1197
33	UNIV ALASKA-FAIRBNKS	Jezek, K. C.	HQ-EE	Weeks, W. F.	NAGW 1051	1198
33	UNIV CALIF-SAN DIEGO	Maynard, N. G.	GSFC	Mueller, J. L.	NAG 5-1022	2091
33	UNIV CALIF-SAN DIEGO	Patzert, W. C.	HQ-EE	Luther, D. S.	NAGW 664	2115
33	UNIV CALIF-SAN DIEGO	Yoder, J. A.	HQ-EE	Simpson, J. J.	NAGW 683	2116
33	UNIV CALIF-SAN DIEGO	Richman, J. G.	HQ-EE	Tai, C. K.	NAGW 808	2117
33	UNIV CALIF-SAN DIEGO	Yoder, J. A.	HQ-EE	Eppley, R. W.	NAGW 993	2121
33	UNIV CALIF-SAN DIEGO	Jezek, K. C.	HQ-EE	Anderson, M. R.	NAGW 1028	2122
33	UNIV CALIF-SAN DIEGO	Richman, J. G.	HQ-EE	Stewart, R. H.	NAGW 1038	2124
33	UNIV CALIF-SAN DIEGO	Yoder, J. A.	HQ-EE	Holm-hansen, O.	NAGW 1070	2125
33	UNIV CALIF-SAN DIEGO	Richman, J. G.	HQ-EE	Filloux, J. H.	NAGW 1126	2126
33	UNIV CALIF-SAN DIEGO	Wickland, D.	HQ-EE	Mueller, J. L.	NAGW 1136	2127
33	UNIV CALIF-SAN DIEGO	Yoder, J. A.	HQ-EE	Stewart, R. H.	NAGW 1237	2130
33	UNIV CALIF-SAN DIEGO	Richman, J. G.	HQ-EE	Stewart, R. H.	NAGW 1271	2131
33	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Somerville, R. C.	NGT 00-050-057	2151
33	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Abbott, M. R.	NGT 00-050-158	2153
33	UNIV CALIF-SAN DIEGO	Owens, F. C.	HQ-XE	Gautier, C.	NGT 00-050-304	2159
33	UNIV CALIF-S BARBARA	Yoder, J. A.	HQ-EE	Smith, R. C.	NAGW 290	2189
33	UNIV COLORADO-BOLDR	Cavalieri, D. J.	GSFC	Steffen, K.	NAG 5-882	2331
33	UNIV COLORADO-BOLDR	Cavalieri, D. J.	GSFC	Emery, W. J.	NAG 5-930	2334
33	UNIV COLORADO-BOLDR	Thomas, R. H.	HQ-EE	Barry, R. G.	NAGW 641	2356
33	UNIV COLORADO-BOLDR	Richman, J. G.	HQ-EE	Emery, W. J.	NAGW 1110	2374
33	UNIV COLORADO-BOLDR	Richman, J. G.	HQ-EE	Born, G.	NAGW 1124	2376
33	UNIV COLORADO-BOLDR	Njoku, E. G.	HQ-EE	Emery, W. J.	NAGW 1264	2385
33	UNIV OF DELAWARE	Richman, J. G.	HQ-EE	Webster, F.	NAGW 1148	2490
33	UNIV ILLINOIS-URBANA	Thomas, R. H.	HQ-EE	Walsh, J. E.	NAGW 1389	2949
33	UNIV OF KANSAS	Richman, J. G.	HQ-EE	Gogineni, P.	NAGW 1278	3144
33	UNIV OF MASS-AMHERST	Richman, J. G.	HQ-EE	McIntosh, R. E.	NAGW 276	3657
33	UNIV OF MASS-AMHERST	Thomas, R. H.	HQ-EE	Swift, C. T.	NAGW 559	3659
33	UNIV OF MASS-AMHERST	Jezek, K. C.	HQ-EE	Swift, C. T.	NAGW 908	3660
33	UNIV OF MASS-AMHERST	Richman, J. G.	HQ-EE	McIntosh, R. E.	NAGW 1112	3662
33	UNIV OF MIAMI	Kirk, R. G.	GSFC	Brown, O. B.	NAG 5-811	2661
33	UNIV OF MIAMI	Szajna, E. F.	GSFC	Gordon, H. G.	NAS 5-28798	2668
33	UNIV OF MIAMI	Szajna, E. F.	GSFC	Evans, R.	NAS 5-29352	2670
33	UNIV OF MIAMI	Yoder, J. A.	HQ-EE	Gordan, H. R.	NAGW 273	2664
33	UNIV OF MIAMI	Yoder, J. A.	HQ-EE	Balch, W. M.	NAGW 1291	2666
33	UNIV NEBRASKA-LINCLN	Thomas, R. H.	HQ-EE	Anderson, M. R.	NAGW 1266	3953
33	UNIV NEW HAMP-DURHAM	Yoder, J. A.	HQ-EE	Moore, B., III	NAGW 848	3996
33	UNIV OF RHODE ISLAND	Yoder, J. A.	HQ-EE	Cornillon, P.	NAGW 858	5002
33	UNIV OF SO FLORIDA	Yoder, J. A.	HQ-EE	Carder, K. L.	NAGW 465	2679
33	UNIV OF SO FLORIDA	Yoder, J. A.	HQ-EE	Carder, K. L.	NAGW 678	2680
33	UNIV OF SOUTHERN CAL	Yoder, J. A.	HQ-EE	Kiefer, D. A.	NAGW 317	2259
33	UNIV OF WASHINGTON	Thomas, R. T.	HQ-EE	Rothrock, D. A.	NAGW 412	5762

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
33	UNIV OF WASHINGTON	Richman, J. G.	HQ-EE	Brown, R. A.	NAGW 679	5765
33	UNIV OF WASHINGTON	Yoder, J. A.	HQ-EE	Perry, M. J.	NAGW 845	5768
33	UNIV OF WASHINGTON	Yoder, J. A.	HQ-EE	Perry, M. J.	NAGW 889	5769
33	UNIV OF WASHINGTON	Jezek, K. C.	HQ-EE	Grenfell, T.	NAGW 945	5770
33	UNIV OF WASHINGTON	Yoder, J. A.	HQ-EE	Banse, K.	NAGW 1007	5771
33	UNIV OF WASHINGTON	Jezek, K. C.	HQ-EE	Martin, S.	NAGW 1045	5772
33	UNIV OF WASHINGTON	Jezek, K. C.	HQ-EE	Colony, R. L.	NAGW 1243	5780
33	UNIV OF WASHINGTON	Jezek, K. C.	HQ-EE	Winebrenner, D. P.	NAGW 1256	5781
33	UNIV OF WASHINGTON	Richman, J. G.	HQ-EE	Katsaros, K. B.	NAGW 1322	5784
33	UNIV OF WASHINGTON	Thomas, R. H.	HQ-EE	Martin, S.	NAGW 1436	5787
33	UNIV OF WASHINGTON	Owens, F. C.	HQ-XE	Martin, S.	NGT 00-050-322	5800
33	WOODSHOLE OCEAN INST	Richman, J. G.	HQ-EE	Graber, H. C.	NAGW 1024	3683
33	WOODSHOLE OCEAN INST	Richman, J. G.	HQ-EE	Joyce, T. M.	NAGW 1026	3684
33	WOODSHOLE OCEAN INST	Yoder, J. A.	HQ-EE	Brewer, P. G.	NAGW 1314	3685
39	AUBURN UNIV-AUBURN	Arnold, R.	HQ-EE	Hajek, B. F.	NAGW 758	1027
39	BOSTON UNIVERSITY	Owens, F. C.	HQ-XE	Woodcock, C.	NGT 00-050-245	3435
39	CATHOLIC UNIVERSITY	Studer, P. A.	GSFC	Nguyen, C. C.	NAG 5-949	2508
39	COLORADO STATE UNIV	Levine, E. R.	GSFC	Schimmel, D. S.	NAG 5-910	2283
39	COLUMBIA UNIVERSITY	Travis, L.	GSFC	Zobler, L.	NCC 5-32	4175
39	COLUMBIA UNIVERSITY	Kurylo, M. J.	HQ-EE	Fairbanks, R. G.	NAGW 835	4162
39	CORNELL UNIVERSITY	Wickland, D. E.	HQ-EE	Mills, E. L.	NAGW 1087	4216
39	DUKE UNIVERSITY	Wickland, D. E.	HQ-EE	Christensen, N. L.	NAGW 1339	4405
39	FLORIDA STATE UNIV	Holben, B. N.	GSFC	Rosborough, G. W.	NAG 5-764	2598
39	FLORIDA STATE UNIV	Choudhury, B.	GSFC	Smith, E. A.	NAG 5-891	2602
39	GEORGE WASHINGTON U	Tuyahov, A. J.	HQ-EE	Lang, R. H.	NAGW 984	2534
39	HOWARD UNIVERSITY	Hall, D. K.	GSFC	Day, B.	NAG 5-224	2557
39	HUNTER COLLEGE	Goward, S. N.	HQ-EE	Strahler, A. H.	NAGW 735	4262
39	HUNTER COLLEGE	Goward, S. N.	HQ-EE	Band, L. E.	NAGW 953	4263
39	KANSAS STATE UNIV	Levine, E. R.	GSFC	Seastedt, T. R.	NAG 5-897	3122
39	KANSAS STATE UNIV	Levine, E.	GSFC	Kanemasu, E. T.	NAG 5-906	3123
39	KANSAS STATE UNIV	Pitts, D. E.	JSC	Kanemasu, E. T.	NAG 9-156	3124
39	LA ST U&A&M COL-BRGE	Oseroff, H.	GSFC	Gosselink, J. G.	NAS 5-28756	3189
39	MASS INST OF TECH	Plaza, A. L.	JSC	Bussolari, S. R.	NAG 9-125	3555
39	MICHIGAN STATE UNIV	Levine, E. R.	GSFC	Tiedje, J. M.	NAG 5-908	3698
39	MIDDLE TENN ST UNIV	Sever, T. L.	NSTL	Fullerton, R. O.	NAS13-370	5042
39	MISSISSIPPI STATE U	Wolverton, B. C.	NSTL	Esher, R. J.	NAG13-6	3862
39	MISSISSIPPI STATE U	Wolverton, B. C.	NSTL	Esher, R. J.	NAG13-8	3863
39	NEW MEX ST U-LAS CR	Nock, R. S.	GSFC	Halligan, J. E.	NAS 5-29800	4086
39	NO CAROLINA STATE U	Kurylo, M. J.	HQ-EE	Blair, N. E.	NAGW 838	4445
39	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Brown, K. G.	NGT 00-070-058	5589
39	OREGON STATE UNIV	Tuyahov, A. J.	HQ-EE	Schrumpf, B.	NAGW 924	4800
39	OREGON STATE UNIV	Wickland, D. E.	HQ-EE	Waring, R. H.	NAGW 948	4801
39	PENN STATE U-UNIV PK	Knott, W.	KSC	Cosgrove, D. J.	NAG10-39	4905
39	PENN STATE U-UNIV PK	Tuyahov, A. J.	HQ-EE	Warner, T. T.	NAGW 1430	4903
39	PENN STATE U-UNIV PK	Wickland, D. E.	HQ-EE	Peterson, G. W.	NGT 00-050-282	4927
39	PRINCETON UNIVERSITY	Owe, M.	GSFC	Milly, P. C.	NAG 5-899	4030
39	PRINCETON UNIVERSITY	Phinney, W. C.	JSC	Hollister, L. S.	NAG 9-158	4035
39	PRINCETON UNIVERSITY	Kurylo, M. J.	HQ-EE	Lundberg, N.	NAGW 833	4040
39	PURDUE UNIVERSITY	Schmerling, E. R.	HQ-E	Collier, R.	NAGW 1056	3021
39	PURDUE UNIVERSITY	Tuyahov, A. J.	HQ-EE	Daughtry, C. S.	NAGW 799	3019
39	PURDUE UNIVERSITY	Tuyahov, A. J.	HQ-EE	Johannsen, C. J.	NAGW 925	3020
39	RICE UNIVERSITY	Butler, D. M.	HQ-EE	Hill, T. W.	NAGW 482	5124
39	SAN DIEGO STATE UNIV	Choudhury, B.	GSFC	Hope, A. S.	NAG 5-911	1571
39	SAN DIEGO STATE UNIV	Hill, C. L.	NSTL	Stow, D. A.	NAS13-373	1575
39	SO DAKOTA STATE UNIV	Oseroff, H.	GSFC	Lewis, J. K.	NAS 5-28766	5036
39	GEORGIA INST OF TECH	Fitzjarraled, D.	MSFC	Patterson, E. M.	NAG 8-626	2721
39	STANFORD UNIVERSITY	Sebesta, P. D.	ARC	Remson, I.	NCA 2-344	1724
39	STANFORD UNIVERSITY	Connell, T.	GSFC	Inan, U.	NCA 5-106	1727
39	STANFORD UNIVERSITY	Wickland, D. E.	HQ-EE	Lyon, R. J.	NAGW 1252	1665
39	STATE U NY-STONY BRK	Kurylo, M. J.	HQ-EE	Varanasi, P.	NAGW 1238	4363

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
39	TUSKEGEE INSTITUTE	Knott, W. M.	KSC	Hill, W. A.	NAG10-24	1056
39	UNIV ALA-HUNTSVILLE	Roberts, W. T.	MSFC	Wu, S. T.	NAG 8-488	1107
39	UNIV ALA-HUNTSVILLE	Snyder, R.	MSFC	Rosenberger, F. E.	NAG 8-711	1126
39	UNIV ALASKA-FAIRBNKS	Kurylo, M. J.	HQ-EE	Reeburgh, W. S.	NAGW 841	1194
39	UNIV OF ARIZONA	Lawless, J. G.	ARC	Ganapol, B. D.	NCA 2-349	1391
39	UNIV OF ARIZONA	Tuyahov, A. J.	HQ-EE	Slater, P.	NAGW 896	1336
39	UNIV OF ARIZONA	Tuyahov, A. J.	HQ-EE	Hutchinson, C. F.	NAGW 912	1338
39	UNIV OF ARIZONA	Tuyahov, A. J.	HQ-EE	Hutchinson, C.	NAGW 1217	1361
39	UNIV OF ARIZONA	Miller, T. L.	HQ-EE	Hutchinson, C. F.	NAGW 1359	1369
39	UNIV OF ARIZONA	Asrar, G.	HQ-EE	Sorooshian, S.	NGT 00-050-273	1412
39	UNIV CALIF-BERKELEY	Miller, T. L.	HQ-EE	Congalton, R. G.	NAGW 881	1832
39	UNIV CALIF-DAVIS	Camillo, P.	GSFC	Paw U, K. T.	NAG 5-937	1921
39	UNIV CALIF-DAVIS	Fitzjarrald, D. E.	MSFC	Carroll, J. J.	NAS 8-36550	1930
39	UNIV CALIF-L ANGELES	Butler, D. M.	HQ-EE	Abdulla, M. A.	NAGW 78	2007
39	UNIV CALIF-L ANGELES	Desch, M. D.	HQ-ES	Coleman, P. J.	NGL 05-007-004	2052
39	UNIV CALIF-SAN DIEGO	Choudhury, B.	GSFC	Gautier, C. H.	NAG 5-900	2088
39	UNIV CALIF-SAN DIEGO	Phinney, W. C.	JSC	MacDougal, J. D.	NAG 9-65	2106
39	UNIV CALIF-SAN DIEGO	Kurylo, M. J.	HQ-EE	Craig, H.	NAGW 972	2119
39	UNIV CALIF-SAN DIEGO	Thompson, D. E.	HQ-EE	Gautier, C.	NAGW 981	2120
39	UNIV CALIF-S BARBARA	Hall, F. G.	GSFC	Botkin, D. B.	NAG 5-548	2184
39	UNIV CALIF-S BARBARA	Choudhury, B.	GSFC	Dozier, J.	NAG 5-917	2185
39	UNIV CALIF-S BARBARA	Oseroff, H.	GSFC	Estes, J. E.	NAS 5-28697	2197
39	UNIV CALIF-S BARBARA	Oseroff, H.	GSFC	Dozier, J.	NAS 5-28770	2198
39	UNIV CALIF-S BARBARA	Tuyahov, A. J.	HQ-EE	Estes, J. E.	NAGW 455	2190
39	UNIV CALIF-S BARBARA	Murphy, R. E.	HQ-EE	Simonett, D. S.	NAGW 788	2191
39	UNIV CALIF-S BARBARA	Dodge, J. C.	HQ-EE	Estes, J. E.	NAGW 987	2192
39	UNIV CALIF-S BARBARA	Wickland, D. E.	HQ-EE	Dozier, J.	NAGW 1137	2194
39	UNIV CALIF-S BARBARA	Ruzek, M. J.	HQ-EE	Dozier, J.	NAGW 1265	2196
39	UNIV COLORADO-BOLDR	Gaydos, L.	ARC	Walker, D. A.	NCA 2-106	2410
39	UNIV COLORADO-BOLDR	Wetzel, P. J.	GSFC	Grossman, R. L.	NAG 5-904	2333
39	UNIV COLORADO-BOLDR	Gardner, L. B.	MSFC	Sture, S.	NAS 8-35668	2405
39	UNIV COLORADO-BOLDR	Davis, B.	NSTL	Hodgson, M. E.	NAG13-9	2392
39	UNIV COLORADO-BOLDR	Tuyahov, A. J.	HQ-EE	Chase, R.	NAGW 1191	2381
39	UNIV COLORADO-BOLDR	Butler, D. M.	HQ-EE	Byerly, R.	NAGW 1415	2390
39	UNIV OF DELAWARE	Camillo, P.	GSFC	Lyzenga, D.	NAG 5-915	2484
39	UNIV OF DELAWARE	Bartlett, D. S.	LARC	Church, T. E.	NAG 1-682	2479
39	UNIV OF DELAWARE	Wickland, D. E.	HQ-EE	Klemas, V.	NAGW 950	2488
39	UNIV OF DENVER	Seals, R. K., Jr.	LARC	Murcray, D. G.	NSG 1432	2450
39	UNIV OF FLORIDA	Uyahov, J. T.	HQ-EL	Ruth, B. E.	NSG 7236	2658
39	UNIV OF GEORGIA	Wickland, D. E.	HQ-EE	Teskey, R. O.	NAGW 1034	2758
39	UNIV OF GEORGIA	Wickland, D. E.	HQ-EE	Box, E. O.	NAGW 1338	2759
39	UNIV ILLINOIS-URBANA	Lin, F. N.	KSC	Chao, B. T.	NAS10-11153	2951
39	UNIV OF KANSAS	Owe, M.	GSFC	Moore, R. K.	NAG 5-912	3139
39	UNIV OF KANSAS	Tuyahov, A. J.	HQ-EE	Martinko, E. A.	NAGW 921	3141
39	UNIV MARYLAND-COL PK	Camillo, P.	GSFC	Sellers, P. J.	NAG 5-892	3330
39	UNIV MARYLAND-COL PK	Choudhury, B.	GSFC	Goward, S. N.	NAG 5-903	3332
39	UNIV MARYLAND-COL PK	Levine, E.	GSFC	Sellers, P.	NAG 5-907	3333
39	UNIV MARYLAND-COL PK	Tucker, C. J.	GSFC	Justice, C. O.	NAG 5-942	3337
39	UNIV MARYLAND-COL PK	Wickland, D. E.	HQ-EE	Goward, S. N.	NAGW 1142	3365
39	UNIV MARYLAND-COL PK	Wickland, D. E.	HQ-EE	Goward, S. N.	NAGW 1152	3366
39	UNIV MARYLAND-COL PK	Ruzek, M.	HQ-EE	Sellers, P.	NAGW 1269	3368
39	UNIV MARYLAND-COL PK	Mellot, M. M.	HQ-ES	Papadopoulos, K.	NAGW 81	3352
39	UNIV MARYLAND-COL PK	Tuyahov, A. J.	HQ-ET	Ragan, R. M.	NAGW 33	3351
39	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Goward, S. N.	NGT 00-050-297	3402
39	UNIV MICH-ANN ARBOR	Andary, J. F.	GSFC	Volz, R. A.	NAG 5-1024	3744
39	UNIV MICH-ANN ARBOR	Miller, E. R.	MSFC	Carignan, G. R.	NAS 8-32661	3780
39	UNIV MICH-ANN ARBOR	Miller, T. L.	HQ-EE	Ulaby, F. T.	NAGW 733	3755
39	UNIV MICH-ANN ARBOR	Tuyahov, A. J.	HQ-EE	Ulaby, F. T.	NAGW 1101	3758
39	UNIV MICH-ANN ARBOR	Wickland, D. E.	HQ-EE	Dobson, M. C.	NAGW 1367	3764
39	U MINN-MNPLS-ST PAUL	Ranson, K. J.	GSFC	Bauer, M. E.	NAG 5-1009	3824

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
39	U MINN-MNPLS-ST PAUL	Oseroff, H.	GSFC	Glaser, P. H.	NAS 5-28740	3836
39	U MINN-MNPLS-ST PAUL	Thompson, D. E.	HQ-EE	Bauer, M. E.	NAGW 1431	3833
39	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-LE	Bauer, M. E.	NGT 00-050-100	3845
39	UNIV OF MONTANA	Peterson, D. L.	ARC	Running, S.	NCA 2-26	3934
39	UNIV OF MONTANA	Murphy, R. E.	HQ-EE	Running, S. W.	NAGW 829	3932
39	UNIV OF MONTANA	Wickland, D. E.	HQ-EE	Running, S. W.	NAGW 952	3933
39	UNIV NEBRASKA-LINCLN	Hall, F.	GSFC	Blad, B.	NAG 5-876	3946
39	UNIV NEBRASKA-LINCLN	Camillo, P.	GSFC	Verma, S. B.	NAG 5-890	3947
39	UNIV NEBRASKA-LINCLN	Camillo, P.	GSFC	Blad, B. L.	NAG 5-894	3948
39	UNIV NEBRASKA-LINCLN	Camillo, P.	GSFC	Norman, J.	NAG 5-957	3950
39	UNIV NEBRASKA-LINCLN	Tuyahov, A. J.	HQ-EE	Norman, J. M.	NAGW 983	3951
39	UNIV NEBRASKA-LINCLN	Ruzek, M. J.	HQ-EE	Norman, J. M.	NAGW 1099	3952
39	UNIV NEW HAMP-DURHAM	Miller, T. L.	HQ-EE	Moore, B. E.	NAGW 980	3997
39	UNIV NEW HAMP-DURHAM	Wickland, D. E.	HQ-EE	Aber, J. D.	NAGW 1145	3998
39	UNIV NEW HAMP-DURHAM	Wickland, D. E.	HQ-EE	Rock, B. N.	NAGW 1245	3999
39	UNIV NEW HAMP-DURHAM	Wickland, D. E.	HQ-EE	Rock, B. N.	NAGW 1248	4000
39	UNIV N CAR-CHPL HILL	Averner, M. M.	HQ-EB	Martens, C. S.	NAGW 593	4465
39	UNIV N CAR-CHPL HILL	Kurylo, M. J.	HQ-EE	Martens, C. S.	NAGW 834	4466
39	UNIV N CAR-CHPL HILL	Tuyahov, A. J.	HQ-EE	Walsh, S. J.	NAGW 926	4467
39	UNIV OF NORTH DAKOTA	Wickland, D. E.	HQ-EE	Lieberman, D.	NAGW 1033	4477
39	UNIV OF PENNSYLVANIA	Knott, W. M.	KSC	Brown, A.	NAG10-21	4944
39	U PUERTO RICO-MAYAGZ	Tuyahov, A. J.	HQ-EE	Gonzales-Iagoo H, J. G.	NAGW 849	5922
39	U PUERTO RICO-RIO PI	Oseroff, H.	GSFC	Waide, R. B.	NAS 5-28746	5928
39	UNIV OF RHODE ISLAND	Levine, E.	GSFC	Groffman, P.	NAG 5-1052	5001
39	UNIV SO CAROLINA-COL	Oseroff, H.	GSFC	Kjerfve, B.	NAS 5-28741	5029
39	UNIV SO CAROLINA-COL	Hill, C. L.	NSTL	Jensen, J. R.	NAS13-358	5030
39	UNIV OF SO FLORIDA	Kurylo, M. J.	HQ-EE	Sackett, W. M.	NAGW 836	2681
39	UNIV TEXAS-AUSTIN	Stachnik, R. V.	HQ-EZ	Shields, G.	NSG 7232	5364
39	UNIV TEXAS-EL PASO	Sebesta, P. D.	ARC	Riter, S.	NCA 2-350	5398
39	UNIV OF TORONTO	Wickland, D. E.	HQ-EE	Band, L. E.	NAGW 1234	5935
39	UNIV OF UTAH	Tuyahov, A. J.	HQ-EL	Wright, P. M.	NAGW 95	5446
39	UNIV OF VIRGINIA	Smith, J. A.	GSFC	Shugart, H. H.	NAG 5-1018	5621
39	UNIV OF VIRGINIA	Kaufman, J. W.	MSFC	Colucci, S. J.	NAG 8-657	5624
39	UNIV OF VIRGINIA	Wickland, D. E.	HQ-EE	Shugart, H. H.	NAGW 947	5629
39	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Galloway, J. N.	NGT 00-050-002	5636
39	UNIV OF VIRGINIA	Owens, F. C.	HQ-LE	Shugart, H. H.	NGT 00-050-102	5637
39	UNIV OF WASHINGTON	Camillo, P.	GSFC	Fritschen, L. G.	NAG 5-901	5746
39	UNIV OF WASHINGTON	Pitts, D. E.	JSC	Tillman, J. E.	NAG 9-243	5758
39	UNIV OF WASHINGTON	Kurylo, M. J.	HQ-EE	Lilley, M. D.	NAGW 840	5766
39	UNIV OF WASHINGTON	Kurylo, M. J.	HQ-EE	Quay, P. D.	NAGW 844	5767
39	UNIV WISC-MADISON	Wetzel, P. J.	GSFC	Eloranta, E. W.	NAG 5-902	5858
39	UNIV WISC-MADISON	Owens, F. C.	HQ-LE	Herman, G. F.	NGT 50-002-802	5905
39	UNIV WISC-MILWAUKEE	Kurylo, M. J.	HQ-EE	Lidstrom, M. E.	NAGW 839	5907
39	UNIV OF WYOMING	Owe, M.	GSFC	Kelly, R. D.	NAG 5-913	5915
39	UTAH STATE UNIV	Butler, D. M.	HQ-EE	Schunk, R. W.	NAGW 77	5456
39	WASHINGTON ST UNIV	Oseroff, H.	GSFC	Frazier, B. E.	NAS 5-28758	5815
39	WASHINGTON UNIVERSTY	Knott, W. M.	KSC	Packard, B.	NAG10-22	3908
39	WASHINGTON UNIVERSTY	Kaluzienski, L. J.	HQ-EZ	Katz, J.	NAGW 592	3903
39	WEST VIRGINIA UNIV	Hampson, R. F.	HQ-EE	Lang, G. E.	NAGW 842	5824
39	YALE UNIVERSITY	Owens, F. C.	HQ-XE	Burch, W.	NGT 00-050-252	2473
41	AMERICAN UNIVERSITY	Fries, S.	HQ-LB	McCurdy, H. E.	NASW 4067	2496
41	ARIZONA STATE UNIV	Maddalon, D. V.	LARC	Saric, W. S.	NAG 1-805	1210
41	ARIZONA STATE UNIV	Maddalon, D. V.	LARC	Reed, H. L.	NAG 1-874	1211
41	ARIZONA STATE UNIV	Peterson, J. B., Jr.	LARC	Saric, W. S.	NCC 1-89	1252
41	ARKANSAS STATE UNIV	Maddalon, D. V.	LARC	Reed, H. L.	NAG 1-731	1441
41	ARKANSAS STATE UNIV	Knox, C. E.	LARC	Scanlon, C. H.	NCC 1-107	1442
41	ARKANSAS STATE UNIV	Knox, C. E.	LARC	Scanlon, C. H.	NCC 1-124	1443
41	AUBURN UNIV-AUBURN	Guest, S. H.	MSFC	Cochran, J. E.	NAG 8-647	1024
41	BELOIT COLLEGE	Kalinowski, J. K.	GSFC	Schroeder, D. J.	NAS 5-29252	5826
41	BOSTON UNIVERSITY	Yates, E. C., Jr.	LARC	Bharadvaj, B. K.	NAG 1-564	3420

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	BROWN UNIVERSITY	Townsend, J. C.	LARC	Sirovich, L.	NAG 1-689	4971
41	BROWN UNIVERSITY	Erlebacher, G.	LARC	Gottlieb, D.	NAG 1-703	4972
41	BROWN UNIVERSITY	Rice, E. J.	LERC	Liu, J. T.	NAG 3-673	4973
41	CALIF INST OF TECH	Schiff, L. B.	ARC	Culick, F. E.	NCC 2-309	1507
41	CALIF INST OF TECH	Gera, J.	ARC	Culick, F.	NCC 2-429	1509
41	CALIF INST OF TECH	Brenner, M. J.	ARC	Doyle, J. C.	NCC 2-477	1510
41	CALIF INST OF TECH	Anders, J. B.	LARC	Marble, F. E.	NAG 1-842	1452
41	CALIF INST OF TECH	Starnes, J. H.	LARC	Knauss, W. G.	NSG 1483	1526
41	CALIF INST OF TECH	Owens, F. C.	HQ-LE	Doyle, J. C.	NGT 00-050-093	1519
41	CAL POLY ST U-POMONA	Corsiglia, V.	ARC	Lord, P. A.	NAG 2-49	1530
41	CAL POLY ST U-S LUIS	Cameron, W. D.	ARC	Fitzpatrick, M.	NAG 2-375	1532
41	CAL POLY ST U-S LUIS	Magee, J. P.	ARC	Grimes, J. E.	NAS 2-10364	1533
41	CAL POLY ST U-S LUIS	Chaderjian, N. M.	ARC	Cummings, R.	NCA 2-212	1534
41	CAL POLY ST U-S LUIS	Corsiglia, V. R.	ARC	Hoffmann, J. A.	NCC 2-226	1535
41	CAL POLY ST U-S LUIS	Gelhausen, P. A.	ARC	Hoffmann, J. A.	NCC 2-236	1536
41	CAL POLY ST U-S LUIS	Gong, L.	ARC	Hoffmann, J.	NCC 2-433	1537
41	CAL POLY ST U-S LUIS	Dudley, M. R.	ARC	Hoffmann, J.	NCC 2-450	1538
41	CAL POLY ST U-S LUIS	Ray, R. J.	ARC	Carpenter, T. W.	NCC 2-467	1539
41	CAL POLY ST U-S LUIS	Ray, R. J.	ARC	Carpenter, T. W.	NCC 2-468	1540
41	CAL POLY ST U-S LUIS	Olson, L. E.	ARC	Hoffmann, J. A.	NCC 2-484	1541
41	CAL POLY ST U-S LUIS	Ray, R. J.	ARC	Carpenter, T. W.	NCC 2-533	1542
41	CAL POLY ST U-S LUIS	Ross, J. C.	ARC	Cummings, R. M.	NCC 2-536	1543
41	CAL STATE U-LG BEACH	Peterson, V. L.	ARC	Cabeci, T.	NAG 2-287	1549
41	CAL STATE U-LG BEACH	Bidwell, C.	LERC	Cebeci, T.	NAG 3-601	1552
41	CAL STATE U-LG BEACH	Bidwell, C. S.	LERC	Cebeci, T.	NAG 3-935	1553
41	CAL STATE U-L ANGLES	Dudley, M. R.	ARC	Wu, C. C.	NAG 2-394	1554
41	CARNEGIE-MELLON UNIV	Nguyen, H. L.	LERC	Ramos, J. I.	NAG 3-689	4828
41	CARNEGIE-MELLON UNIV	Roelke, R. J.	LERC	Shih, T. I.	NAG 3-929	4830
41	CASE WESTERN RESERVE	Anders, J. B.	LARC	Reshotko, E.	NAG 1-856	4480
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-61	4483
41	CASE WESTERN RESERVE	Fleming, D. P.	LERC	Adams, M. L.	NAG 3-331	4485
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-520	4490
41	CASE WESTERN RESERVE	Bober, L. J.	LERC	Reshotko, E.	NAG 3-648	4497
41	CASE WESTERN RESERVE	Kascak, A. F.	LERC	Huckelbridge, A.	NAG 3-707	4506
41	CASE WESTERN RESERVE	Sockol, P. M.	LERC	Greber, I.	NAG 3-725	4507
41	CASE WESTERN RESERVE	Berke, L.	LERC	Sterling, L.	NAG 3-787	4515
41	CASE WESTERN RESERVE	Williamson, G. S.	LERC	T'ien, J. S.	NAG 3-809	4520
41	CASE WESTERN RESERVE	Newman, F. A.	LERC	Resler, E. L.	NAG 3-931	4531
41	CASE WESTERN RESERVE	Owens, F. C.	HQ-XE	Korczak, K.	NGT 00-050-140	4562
41	CITY COLLEGE OF N Y	Budhnell, D. M.	LARC	Johnson, J. A., III	NAG 1-377	4110
41	CITY COLLEGE OF N Y	Boldman, D. R.	LERC	Raj, R.	NAG 3-122	4113
41	CLEMSON UNIV-CLEMSON	O'brien, T. K.	LARC	Goree, J. G.	NAG 1-629	5007
41	CLEVELAND STATE UNIV	Sockol, P. M.	LERC	Gorla, R. S.	NAG 3-548	4572
41	CLEVELAND STATE UNIV	Chamis, C. C.	LERC	Bellini, P.	NAG 3-550	4573
41	CLEVELAND STATE UNIV	Chamis, C. C.	LERC	Bellini, P. X.	NAG 3-644	4574
41	CLEVELAND STATE UNIV	Chun, K. S.	LERC	Lock, J. A.	NAG 3-737	4577
41	CLEVELAND STATE UNIV	Boyle, R. J.	LERC	Ibrahim, M. B.	NAG 3-748	4578
41	CLEVELAND STATE UNIV	Miner, R. V.	LERC	Tewari, S. N.	NCC 3-111	4611
41	COLUMBIA UNIVERSITY	McGary, M. C.	LARC	Vaicaitis, R.	NAG 1-541	4134
41	CORNELL UNIVERSITY	Chyu, W. J.	ARC	Caughey, D. A.	NAG 2-373	4187
41	CORNELL UNIVERSITY	Signor, D. B.	ARC	George, A. R.	NAG 2-379	4188
41	CORNELL UNIVERSITY	Newman, F. A.	LERC	Moore, F. K.	NAG 3-349	4190
41	CORNELL UNIVERSITY	Chima, R. V.	LERC	Caughey, D. A.	NAG 3-645	4191
41	CORNELL UNIVERSITY	Newman, F. A.	LERC	Resler, E. L.	NAG 3-803	4193
41	DREXEL UNIVERSITY	Price, D. B.	LARC	Yousuff, A.	NAG 1-243	4838
41	DUKE UNIVERSITY	Kaza, K. R.	LERC	Dowell, E. H.	NAG 3-724	4400
41	EMBRY-RIDDLE AERO U	Credeur, L.	LARC	Lohr, G. W.	NCC 1-66	2578
41	FLORIDA ATLANTIC U	Farassat, F.	LARC	Glegg, S. A.	NAG 1-715	2589
41	FLORIDA STATE UNIV	Smith, C. A.	ARC	Krothapalli, A.	NAG 2-314	2597
41	FLORIDA STATE UNIV	Seiner, J. M.	LARC	Tam, C. K.	NAG 1-421	2594

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	FLORIDA STATE UNIV	Zang, T. A.	LARC	Kopriva, D. A.	NAG 1-862	2596
41	GEORGE WASHINGTON U	Sobieski, J.	LARC	Liebowitz, H.	NAG 1-728	2522
41	GEORGE WASHINGTON U	Carden, H. D.	LARC	Liebowitz, H.	NAG 1-730	2523
41	GEORGE WASHINGTON U	Starnes, J. H.	LARC	Liebowitz, H.	NAG 1-788	2526
41	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NAS 1-14605	2536
41	GEORGE WASHINGTON U	Massenberg, S. E.	LARC	Wolfson, B. E.	NAS 1-18458	2537
41	GEORGE WASHINGTON U	Clark, L. R.	LARC	Liebowitz, H.	NCC 1-14	2542
41	GEORGE WASHINGTON U	Bright, R. T.	LARC	Liebowitz, H.	NCC 1-24	2543
41	GEORGE WASHINGTON U	Batterson, J. G.	LARC	Liebowitz, H.	NCC 1-29	2544
41	GEORGE WASHINGTON U	Massenberg, S. E.	LARC	Liebowitz, H.	NCC 1-47	2545
41	GEORGE WASHINGTON U	Robinson, M. P.	LARC	Liebowitz, H.	NGR 09-010-078	2547
41	GEORGE WASHINGTON U	Clark, L. R.	LARC	Liebowitz, H.	NGR 09-010-085	2548
41	GEORGE WASHINGTON U	Rostafinski, W.	LERC	Garris, C. A.	NAG 3-860	2529
41	GEORGE WASHINGTON U	Venneri, S. L.	HQ-RM	Noor, A. K.	NAGW 1164	2535
41	HAMPTON UNIVERSITY	Northam, G. B.	LARC	Yates, C. L.	NAG 1-628	5509
41	HAMPTON UNIVERSITY	Harvey, W. D.	LARC	Ram, R. B.	NAG 1-904	5518
41	HAMPTON UNIVERSITY	Heath, R. A.	LARC	Bowman, W.	NCA 1-63	5521
41	HAMPTON UNIVERSITY	Bergeron, H. P.	LARC	Armstrong, H. B.	NCC 1-125	5523
41	HARVEY MUDD COLLEGE	Petersen, K. L.	ARC	Taenbaum, B. S.	NCC 2-411	1564
41	HARVEY MUDD COLLEGE	Voelker, L.	ARC	Taenbaum, B. S.	NCC 2-425	1565
41	ILL INST OF TECH	Guy, R. W.	LARC	Acharya, M.	NAG 1-871	2821
41	IMPERIAL C SCI & TEC	Peake, D. J.	ARC	Bradshaw, P.	NAGW 581	5941
41	IOWA STATE UNIV	Olson, L. E.	ARC	James, W. D.	NAG 2-30	3057
41	IOWA STATE UNIV	Murphy, J. D.	ARC	Pletcher, R. H.	NAG 2-152	3059
41	IOWA STATE UNIV	Marvin, J. G.	ARC	Tannehill, J. C.	NAG 2-245	3060
41	IOWA STATE UNIV	Holst, T. L.	ARC	Vogel, J. M.	NCA 2-190	3073
41	IOWA STATE UNIV	Holst, T. L.	ARC	Wilson, L. N.	NCA 2-346	3074
41	IOWA STATE UNIV	Chaussee, D. S.	ARC	Tannehill, J. C.	NCA 2-340501	3075
41	IOWA STATE UNIV	Steger, J. L.	ARC	Pletcher, R. H.	NCC 2-476	3077
41	IOWA STATE UNIV	Strazisar, A. J.	LERC	Okiishi, T. H.	NAG 3-356	3062
41	IOWA STATE UNIV	Hathaway, M. D.	LERC	Okiishi, T. H.	NAG 3-917	3063
41	IOWA STATE UNIV	Owens, F. C.	HQ-XE	Pierson, B. L.	NGT 00-050-128	3078
41	ISRAEL INST OF TECH	Ardema, M. D.	ARC	Shinar, J.	NCCW 4	5946
41	JOHNS HOPKINS UNIV	Kalinowski, J. K.	GSFC	Fastie, W. G.	NAS 5-29259	3259
41	JOHNS HOPKINS UNIV	Vitablano, D.	GSFC	Moos, W.	NAS 5-30403	3261
41	KANSAS STATE UNIV	Nguyen, L. T.	LARC	Downing, D. R.	NAG 1-777	3121
41	LEHIGH UNIVERSITY	Kumar, A.	LARC	Walker, J. D.	NAG 1-832	4852
41	LEHIGH UNIVERSITY	Simon, F.	LERC	Walker, J. D.	NAG 3-771	4854
41	MASS INST OF TECH	Johnson, W. R.	ARC	Widnall, S. E.	NAG 2-251	3494
41	MASS INST OF TECH	Stremel, P. M.	ARC	Drela, M.	NAG 2-421	3499
41	MASS INST OF TECH	Kidwell, G. H.	ARC	Drela, M.	NAG 2-478	3502
41	MASS INST OF TECH	Lau, B. H.	ARC	Ham, N. D.	NCC 2-366	3609
41	MASS INST OF TECH	Talbot, P. D.	ARC	Ham, N. D.	NCC 2-447	3610
41	MASS INST OF TECH	Montgomery, R. C.	LARC	Vandervelde, W. E.	NAG 1-126	3483
41	MASS INST OF TECH	Melson, N. D.	LARC	Murman, E. M.	NAG 1-358	3484
41	MASS INST OF TECH	Melson, N. D.	LARC	Murman, E. M.	NAG 1-507	3486
41	MASS INST OF TECH	Dunham, R. E., Jr.	LARC	Hansman, R. J., Jr.	NAG 1-568	3487
41	MASS INST OF TECH	Holmes, B. J.	LARC	Hansman, R. J.	NAG 1-690	3489
41	MASS INST OF TECH	Winston, M. M.	LARC	Kerrebrock, J. L.	NAG 1-836	3491
41	MASS INST OF TECH	Melson, N. D.	LARC	Murman, E. M.	NAG 1-855	3492
41	MASS INST OF TECH	Holmes, B. J.	LARC	Van Dam, C. P.	NAG 2-275	3496
41	MASS INST OF TECH	Morrell, F. R.	LARC	Simpson, R. W.	NGL 22-009-640	3613
41	MASS INST OF TECH	Nguyen, H. L.	LERC	Heywood, J. B.	NAG 3-82	3503
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Covert, E. E.	NAG 3-660	3505
41	MASS INST OF TECH	Potapczuk, M. G.	LERC	Hansman, R. J.	NAG 3-666	3506
41	MASS INST OF TECH	Chamis, C. C.	LERC	Mandell, J. F.	NAG 3-680	3507
41	MASS INST OF TECH	Schumann, L. F.	LERC	Epstein, A. H.	NAG 3-770	3511
41	MASS INST OF TECH	Meitner, P. L.	LERC	Covert, E. E.	NAG 3-772	3512
41	MASS INST OF TECH	Merrill, W. C.	LERC	Vander Velde, W. E.	NAG 3-819	3514
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Greitzer, E. M.	NAG 3-844	3515

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	MASS INST OF TECH	Reinmann, J. J.	LERC	Hansman, R. J.	NAG 3-927	3517
41	MASS INST OF TECH	Goldstein, M. E.	LERC	Landahl, M.	NCC 3-117	3611
41	MASS INST OF TECH	Newman, F. A.	LERC	Greitzer, E. M.	NSG 3208	3636
41	MASS INST OF TECH	Bardos, R.	HQ-MO	Mar, S. W.	NASW 3904	3605
41	MISSISSIPPI STATE U	Chapman, G. T.	ARC	Koenig, K.	NCA 2-52	3869
41	MISSISSIPPI STATE U	Chapman, G. T.	ARC	Koenig, K.	NCA 2-244	3870
41	MISSISSIPPI STATE U	Streett, C. L.	LARC	Whitfield, D. L.	NAG 1-226	3857
41	MISSISSIPPI STATE U	Hoyniak, D.	LERC	Whitfield, D. L.	NAG 3-767	3858
41	MISSISSIPPI STATE U	Sanz, J. M.	LERC	Whitfield, D.	NAG 3-869	3859
41	NEW MEX ST U-LAS CR	West, W. W.	GSFC	Lane, K.	NAS 5-28928	4083
41	NEW MEX ST U-LAS CR	Nock, R. S.	GSFC	Wells, R. T.	NAS 5-29770	4085
41	NEW MEX ST U-LAS CR	Cannon, R.	GSFC	Unavailable	NAS 5-30105	4087
41	NEW MEX ST U-LAS CR	Smith, G. A.	GSFC	Carden, F.	NCC 5-40	4091
41	NEW YORK UNIVERSITY	Chang, I. C.	ARC	Garabedian, P. R.	NAG 2-345	4270
41	NEW YORK UNIVERSITY	Liu, C. H.	LARC	Ting, L.	NCC 1-58	4280
41	NO CAR A&T STATE U	Gatski, T. B.	LARC	Klimkowski, J. Z.	NAG 1-812	4420
41	NO CAROLINA STATE U	Harris, J. E.	LARC	Hassan, H. A.	NAG 1-244	4428
41	NO CAROLINA STATE U	Salas, M. D.	LARC	Hassan, H. A.	NCC 1-22	4449
41	NO CAROLINA STATE U	Schoonover, W. E., Jr.	LARC	Dejarnette, F. R.	NCC 1-46	4450
41	NO CAROLINA STATE U	Gloss, B. B.	LARC	Dejarnette, F. R.	NCC 1-98	4451
41	NO CAROLINA STATE U	Zoby, E. V.	LARC	Dejarnette, F. R.	NCC 1-100	4452
41	NO CAROLINA STATE U	Miller, C. G.	LARC	Perkins, J. N.	NCC 1-109	4454
41	NO CAROLINA STATE U	Sutton, K.	LARC	Hassan, H. A.	NCC 1-112	4455
41	NO CAROLINA STATE U	Rudy, D. H.	LARC	Dejarnette, F. R.	NCC 1-117	4457
41	NO CAROLINA STATE U	Jordan, F. L.	LARC	Perkins, J. N.	NCC 1-118	4458
41	NO CAROLINA STATE U	Johnson, J. L.	LARC	Perkins, J. N.	NCC 1-123	4459
41	NO CAROLINA STATE U	Johns, A. L.	LERC	Boles, M. A.	NAG 3-608	4437
41	NO CAROLINA STATE U	Krejsa, E. A.	LERC	Nagel, R. T.	NAG 3-855	4441
41	NO CAROLINA STATE U	Owens, F. C.	HQ-LE	Hassan, H. A.	NGT 34-002-801	4461
41	NORTHWESTERN UNIV	Chamis, C. C.	LERC	Belytschko, T.	NAG 3-535	2826
41	NORTHWESTERN UNIV	Baumeister, K. J.	LERC	Taflove, A.	NAG 3-635	2827
41	OHIO STATE UNIV	Brandon, J. M.	LARC	Bragg, M. B.	NAG 1-641	4626
41	OHIO STATE UNIV	Potapczuk, M. G.	LERC	Bragg, M. B.	NAG 3-28	4630
41	OHIO STATE UNIV	Potapczuk, M. G.	LERC	Lee, J. D.	NAG 3-374	4632
41	OHIO STATE UNIV	Goldstein, M. E.	LERC	Bodonyi, R. J.	NAG 3-743	4636
41	OHIO STATE UNIV	Chamis, C. C.	LERC	Sarigul, N.	NAG 3-790	4641
41	OHIO STATE UNIV	Oran, W. A.	HQ-IC	Bossler, J.	NAGW 973	4658
41	OHIO UNIVERSITY	Morrell, F. R.	LARC	McFarland, R. H.	NAG 1-816	4680
41	OLD DOMINION UNIV	Massenberg, S. E.	LARC	Tiwari, S. N.	NAG 1-363	5534
41	OLD DOMINION UNIV	Kumar, A.	LARC	Tiwari, S. N.	NAG 1-423	5535
41	OLD DOMINION UNIV	Anders, J. B.	LARC	Ash, R. L.	NAG 1-530	5539
41	OLD DOMINION UNIV	Dagenhart, J. R.	LARC	Lakin, W. D.	NAG 1-576	5542
41	OLD DOMINION UNIV	Salas, M. D.	LARC	Von Lavante, E.	NAG 1-633	5545
41	OLD DOMINION UNIV	Bland, S. R.	LARC	Kandil, O. A.	NAG 1-648	5546
41	OLD DOMINION UNIV	Stallings, R. L., Jr.	LARC	Baysal, O.	NAG 1-664	5548
41	OLD DOMINION UNIV	Boyden, R. P.	LARC	Britcher, C. P.	NAG 1-716	5551
41	OLD DOMINION UNIV	Price, D. B.	LARC	Hibey, J. L.	NAG 1-736	5554
41	OLD DOMINION UNIV	Erlebacher, G.	LARC	Lakin, W. D.	NAG 1-773	5558
41	OLD DOMINION UNIV	Mixson, J. S.	LARC	Mei, C.	NAG 1-838	5563
41	OLD DOMINION UNIV	Liu, C. H.	LARC	Kandil, O. A.	NAG 1-846	5564
41	OLD DOMINION UNIV	Pao, S. P.	LARC	Lakin, W. D.	NAG 1-881	5566
41	OLD DOMINION UNIV	Maddrea, G. L.	LARC	Kidd, C.	NAS 1-17993	5570
41	OLD DOMINION UNIV	Prior, E. D.	LARC	Wolfson, B. E.	NAS 1-18584	5571
41	OLD DOMINION UNIV	Smith, R. E., Jr.	LARC	Tiwari, S. N.	NCC 1-68	5575
41	OLD DOMINION UNIV	Plentovich, E. B.	LARC	Baysal, O.	NCC 1-121	5580
41	OLD DOMINION UNIV	Massenberg, S. E.	LARC	Roberts, A. S., Jr.	NGR 47-003-052	5581
41	PENN STATE U-UNIV PK	Margason, R. J.	ARC	Cimbala, J. M.	NAG 2-484	4874
41	PENN STATE U-UNIV PK	Mehta, U. B.	ARC	Dulikravich, G. S.	NCA 2-100	4913
41	PENN STATE U-UNIV PK	Feiereisen, W. J.	ARC	Dulikravich, G. S.	NCA 2-120	4914
41	PENN STATE U-UNIV PK	Kwak, D.	ARC	Abdallah, S.	NCA 2-291	4917

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	PENN STATE U-UNIV PK	Seiner, J. M.	LARC	Morris, P. J.	NAG 1-657	4869
41	PENN STATE U-UNIV PK	Somers, D. M.	LARC	Maughmer, M. D.	NAG 1-778	4870
41	PENN STATE U-UNIV PK	Shaughnessy, J. D.	LARC	Maughmer, M. D.	NAG 1-849	4871
41	PENN STATE U-UNIV PK	Northam, G. B.	LARC	Settles, G. S.	NAG 1-872	4872
41	PENN STATE U-UNIV PK	Povinelli, L. A.	LARC	Lakshminarayana, B.	NAG 3-555	4875
41	PENN STATE U-UNIV PK	Sanger, N. L.	LERC	Deutsch, S.	NSG 3264	4932
41	PENN STATE U-UNIV PK	Sockol, P. M.	LERC	Lakshminarayana, B.	NSG 3266	4933
41	PENN STATE U-UNIV PK	Owens, F. C.	HQ-XE	Morris, P. J.	NGT 00-050-003	4924
41	PENN STATE U-UNIV PK	Owens, F. C.	HQ-XE	Dulikravich, G. S.	NGT 00-050-135	4925
41	PENN STATE U-UNIV PK	Owens, F. C.	HQ-XE	Maughmer, M. D.	NGT 00-050-341	4929
41	PENN STATE U-UNIV PK	Owens, F. C.	HQ-LB	Petersen, G. W.	NGT 39-009-808	4931
41	POLY INST OF NY	Purcell, T. W.	ARC	Isom, M. P.	NCC 2-172	4283
41	PRINCETON UNIVERSITY	Hicks, R. M.	ARC	Jameson, A.	NAG 2-96	4018
41	PRINCETON UNIVERSITY	Decker, W. A.	ARC	Curtiss, H. C.	NAG 2-244	4019
41	PRINCETON UNIVERSITY	Jacklin, S. A.	ARC	McKillip, R. M.	NAG 2-415	4021
41	PRINCETON UNIVERSITY	Salas, M. D.	LARC	Jameson, A.	NAG 1-186	4012
41	PRINCETON UNIVERSITY	Zang, T. A.	LARC	Nosenchuck, D. M.	NAG 1-494	4013
41	PRINCETON UNIVERSITY	Gnoffo, P. A.	LARC	Lam, S. H.	NAG 1-726	4015
41	PRINCETON UNIVERSITY	Hinton, D. A.	LARC	Stengel, R. F.	NAG 1-834	4016
41	PRINCETON UNIVERSITY	Moreder, D. D.	LARC	Mease, K. D.	NAG 1-907	4017
41	PRINCETON UNIVERSITY	Blanchard, R. C.	LARC	Cheng, S. I.	NAS 1-17234	4042
41	PRINCETON UNIVERSITY	Dwoyer, D. L.	LARC	Bogdonoff, S. M.	NCC 1-131	4048
41	PRINCETON UNIVERSITY	Morrell, F. R.	LARC	Stengel, R. F.	NGL 31-001-252	4050
41	PRINCETON UNIVERSITY	Porro, A. R.	LERC	Bogdonoff, S. M.	NAG 3-926	4027
41	PURDUE UNIVERSITY	Berry, D. T.	ARC	Schmidt, D. K.	NAG 4-1	3014
41	PURDUE UNIVERSITY	Lebacqz, J. V.	ARC	Brown, R. J.	NCC 2-367	3029
41	PURDUE UNIVERSITY	Hilbert, K. B.	ARC	Schmidt, D. K.	NCC 2-459	3030
41	PURDUE UNIVERSITY	Silcox, R. J.	LARC	Bernhard, R. J.	NAG 1-58	2988
41	PURDUE UNIVERSITY	Perry, B.	LARC	Weisshaar, T. A.	NAG 1-157	2989
41	PURDUE UNIVERSITY	Edwards, J. W.	LARC	Yang, H. T.	NAG 1-372	2990
41	PURDUE UNIVERSITY	Adelman, H. M.	LARC	Skelton, R. E.	NAG 1-642	2994
41	PURDUE UNIVERSITY	Arbuckle, P. D.	LARC	Schmidt, D. K.	NAG 1-758	2996
41	PURDUE UNIVERSITY	Williams, J. P.	LARC	Skelton, R. E.	NAG 1-857	2999
41	PURDUE UNIVERSITY	Steinke, R. J.	LERC	Murthy, S. N.	NAG 3-481	3003
41	PURDUE UNIVERSITY	Kaza, K. V.	LERC	Williams, M. H.	NAG 3-499	3005
41	PURDUE UNIVERSITY	Overbeke, T. V.	LERC	Murthy, S. N.	NAG 3-592	3007
41	PURDUE UNIVERSITY	Hoyniak, D.	LERC	Fleeter, P. S.	NAG 3-656	3009
41	PURDUE UNIVERSITY	Newman, F. A.	LERC	Fleeter, S.	NAG 3-825	3010
41	PURDUE UNIVERSITY	Adamczyk, J. J.	LERC	Usab, W. J.	NAG 3-875	3013
41	PURDUE UNIVERSITY	Mitchell, G. A.	LERC	Sullivan, J. P.	NSG 3135	3039
41	PURDUE UNIVERSITY	Schumann, L.	LERC	Fleeter, S.	NSG 3285	3040
41	PURDUE UNIVERSITY	Owens, F. C.	HQ-LE	Grandt, A. F., Jr.	NGT 00-050-006	3031
41	PURDUE UNIVERSITY	Owens, F. C.	HQ-LE	Howell, K. C.	NGT 00-050-053	3033
41	PURDUE UNIVERSITY	Owens, F. C.	HQ-LE	Andrisani, D.	NGT 00-050-072	3035
41	RENSELAER POLY-NY	Mulville, D.	HQ	Loewy, R. G.	NGL 33-018-003	4305
41	RENSELAER POLY-NY	Sobieski, J.	LARC	Gabriele, G. A.	NAG 1-752	4288
41	RENSELAER POLY-NY	Kvaternik, R. G.	LARC	Bielawa, R.	NAG 1-807	4289
41	RENSELAER POLY-NY	Adamczyk, J. J.	LERC	Mayle, R. E.	NAG 3-810	4294
41	RENSELAER POLY-NY	Luidems, R. W.	LERC	Myrabo, L. N.	NAG 3-916	4295
41	RENSELAER POLY-NY	McCay, T. D.	MSFC	Myrabo, L. N.	NAG 8-28	4297
41	RICE UNIVERSITY	Price, C.	JSC	De Figueiredo, R.	NAG 9-208	5119
41	RICE UNIVERSITY	Bowles, R. L.	LARC	Miele, A.	NAG 1-516	5110
41	RUTGERS ST U-N BRNSK	Tobak, M.	ARC	Zebib, A.	NCA 2-61	4061
41	SAN DIEGO STATE UNIV	Olson, L. E.	ARC	Katz, J.	NCC 2-458	1576
41	SAN JOSE STATE UNIV	Lasher, L. E.	ARC	Desautel, D.	NAG 2-363	1585
41	SAN JOSE STATE UNIV	Tauber, M. E.	ARC	Desautel, D.	NAG 2-457	1587
41	SAN JOSE STATE UNIV	Talbot, P. D.	ARC	Wang, J. C.	NCC 2-267	1604
41	SAN JOSE STATE UNIV	Lasher, L. E.	ARC	Desautel, D.	NCC 2-412	1608
41	SAN JOSE STATE UNIV	Deiwert, G. S.	ARC	Borja, A. A.	NCC 2-430	1609
41	SAN JOSE STATE UNIV	Miura, H.	ARC	Wang, J. C.	NCC 2-432	1610

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	GEORGIA INST OF TECH	Lau, B. H.	ARC	Peters, D. A.	NAG 2-462	2708
41	GEORGIA INST OF TECH	Cheng, V. H.	ARC	Menon, P. K.	NAG 2-463	2709
41	GEORGIA INST OF TECH	Decker, W. A.	ARC	Schrage, D. P.	NCA 2-159	2738
41	GEORGIA INST OF TECH	Atencio, A.	ARC	Schrage, D. P.	NCA 2-266	2739
41	GEORGIA INST OF TECH	Duke, E. L.	ARC	Menon, P. K.	NCC 2-506	2740
41	GEORGIA INST OF TECH	Nixon, M. W.	LARC	Rehfield, L. W.	NAG 1-638	2698
41	GEORGIA INST OF TECH	Berry, J. D.	LARC	Komerath, N. M.	NAG 1-693	2700
41	GEORGIA INST OF TECH	Adelman, H. M.	LARC	Peters, D. A.	NAG 1-710	2701
41	GEORGIA INST OF TECH	Moerder, D. D.	LARC	Calise, A. J.	NAG 1-784	2702
41	GEORGIA INST OF TECH	Chamis, C. C.	LERC	Simitses, G. J.	NAG 3-534	2712
41	GEORGIA INST OF TECH	Kaza, K. R.	LERC	Sankar, L. N.	NAG 3-730	2713
41	GEORGIA INST OF TECH	Kaza, K. R.	LERC	Kamat, M.	NAG 3-895	2716
41	GEORGIA INST OF TECH	Owens, F. C.	HQ-XE	Menon, P. K.	NGT 00-050-387	2743
41	STANFORD UNIVERSITY	Erzberger, H.	ARC	Bryson, A. E.	NAG 2-191	1629
41	STANFORD UNIVERSITY	Marvin, J. G.	ARC	Roberts, L.	NAG 2-331	1633
41	STANFORD UNIVERSITY	Watson, V. R.	ARC	Hesselink, L.	NAG 2-489	1636
41	STANFORD UNIVERSITY	Vaziri, A.	ARC	Hesselink, L.	NCA 2-77	1680
41	STANFORD UNIVERSITY	Smith, S. C.	ARC	Kroo, I.	NCA 2-84	1682
41	STANFORD UNIVERSITY	Feiereisen, W.	ARC	Baganoff, D.	NCA 2-116	1686
41	STANFORD UNIVERSITY	Mansour, N.	ARC	Homsy, G.	NCA 2-166	1691
41	STANFORD UNIVERSITY	Pulliam, T. H.	ARC	Spreiter, J. R.	NCA 2-168	1692
41	STANFORD UNIVERSITY	Spalart, P.	ARC	Cantwell, B. J.	NCA 2-183	1693
41	STANFORD UNIVERSITY	Davis, S.	ARC	Cantwell, B. J.	NCA 2-187	1694
41	STANFORD UNIVERSITY	Deiwert, G. S.	ARC	MacCormack, R. W.	NCA 2-243	1702
41	STANFORD UNIVERSITY	Viegas, J. R.	ARC	MacCormack, R. W.	NCA 2-259	1704
41	STANFORD UNIVERSITY	Smith, S. C.	ARC	Kroo, I.	NCA 2-271	1708
41	STANFORD UNIVERSITY	Margason, R. J.	ARC	Ashley, H.	NCA 2-287	1712
41	STANFORD UNIVERSITY	Nelson, H. G.	ARC	Springer, G. S.	NCA 2-311	1715
41	STANFORD UNIVERSITY	Deiwert, G. S.	ARC	Baganoff, D.	NCA 2-313	1716
41	STANFORD UNIVERSITY	Yu, Y. H.	ARC	Bershader, D.	NCA 2-339	1722
41	STANFORD UNIVERSITY	Mehta, U.	ARC	Kroo, I.	NCA 2-343	1723
41	STANFORD UNIVERSITY	Ennis, D. J.	ARC	Hesselink, L.	NCA 2-745411	1725
41	STANFORD UNIVERSITY	Ragallo, R. S.	ARC	Ferziger, J. H.	NCC 2-15	1728
41	STANFORD UNIVERSITY	Edenborough, H. K.	ARC	Roberts, L.	NCC 2-55	1729
41	STANFORD UNIVERSITY	Schairer, E. T.	ARC	Roberts, L.	NCC 2-77	1730
41	STANFORD UNIVERSITY	Hilbert, K. B.	ARC	Bryson, A. E., Jr.	NCC 2-106	1731
41	STANFORD UNIVERSITY	Aoyagi, K.	ARC	Roberts, L. R.	NCC 2-150	1732
41	STANFORD UNIVERSITY	Cagliostro, D.	ARC	Springer, G. S.	NCC 2-291	1735
41	STANFORD UNIVERSITY	King, L. S.	ARC	Roberts, L.	NCC 2-294	1736
41	STANFORD UNIVERSITY	Murphy, J.	ARC	Roberts, L.	NCC 2-326	1741
41	STANFORD UNIVERSITY	Bencze, D. P.	ARC	Roberts, L.	NCC 2-341	1743
41	STANFORD UNIVERSITY	Marvin, J. G.	ARC	Roberts, L.	NCC 2-376	1744
41	STANFORD UNIVERSITY	Smith, S. C.	ARC	Kroo, I. B.	NCC 2-384	1745
41	STANFORD UNIVERSITY	Erickson, L. E.	ARC	Roberts, L.	NCC 2-390	1747
41	STANFORD UNIVERSITY	Viegas, J. R.	ARC	Roberts, L.	NCC 2-532	1756
41	STANFORD UNIVERSITY	Holst, T. L.	ARC	Roberts, L.	NCC 2-543	1758
41	STANFORD UNIVERSITY	Chapman, G. T.	ARC	Hanson, R. K.	NCC 2-547	1759
41	STANFORD UNIVERSITY	Baker, F. A.	ARC	Bershader, D.	NCC 2-549	1760
41	STANFORD UNIVERSITY	Vitagliano, D.	GSFC	Timothy, J. G.	NAS 5-29389	1668
41	STANFORD UNIVERSITY	Doggett, R. V., Jr.	LARC	Ashley, H.	NGL 05-020-243	1766
41	STANFORD UNIVERSITY	Fishbach, L. H.	LERC	Breakwell, J. V.	NAG 3-908	1640
41	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Bryson, A. E.	NGT 00-050-359	1779
41	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Bershader, D.	NGT 00-050-389	1781
41	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	MacCormack, R. W.	NGT 00-070-078	1785
41	STANFORD UNIVERSITY	Owens, F. C.	HQ-LE	Banks, P. M.	NGT 00-070-016	1782
41	STATE UNIV NY-BUFFAL	Horner, G. C.	LARC	Inman, D. J.	NAG 1-785	4341
41	STATE UNIV NY-BUFFAL	Owens, F. C.	HQ-XE	Inman, D. J.	NGT 00-070-030	4349
41	STATE UNIV NY-BUFFAL	Owens, F. C.	HQ-XE	Inman, D. J.	NGT 00-070-031	4350
41	ST U NY COL-ONEONTA	Harvey, W. D.	LARC	Ram, R. B.	NAG 1-131	4377
41	STATE U NY-STONY BRK	Owens, F. C.	HQ-LE	Inman, D. J.	NGT 33-183-804	4371

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	SYRACUSE UNIVERSITY	Peterson, R.	ARC	Murthy, V. R.	NAG 2-306	4382
41	SYRACUSE UNIVERSITY	Wilbur, M. L.	LARC	Murthy, V. R.	NAG 1-759	4380
41	TEXAS A&M UNIV SYSTM	Yates, E. C.	LARC	Carlson, L. A.	NAG 1-793	5144
41	TENNESSEE STATE UNIV	Harwell, R.	MSFC	Olson, L. H.	NAG 8-22	5044
41	TEXAS A&M UNIVERSITY	Shockey, G. A.	ARC	Hall, G. F.	NCC 2-260	5201
41	TEXAS A&M UNIVERSITY	Holder, B. W.	JSC	Allen, D. H.	NAG 9-140	5169
41	TEXAS A&M UNIVERSITY	Whitnah, M. A.	JSC	Ward, D. T.	NAG 9-148	5172
41	TEXAS A&M UNIVERSITY	Li, C.	JSC	Anderson, D. A.	NAG 9-194	5178
41	TEXAS A&M UNIVERSITY	Stickle, J. W.	LARC	Ward, D. T.	NAG 1-344	5147
41	TEXAS A&M UNIVERSITY	Campbell, R. L.	LARC	Carlson, L. A.	NAG 1-619	5149
41	TEXAS A&M UNIVERSITY	Seiner, J. M.	LARC	Morrison, G. L.	NAG 1-630	5150
41	TEXAS A&M UNIVERSITY	Hinton, D. A.	LARC	Ward, D. T.	NAG 1-781	5154
41	TEXAS A&M UNIVERSITY	Weidner, J. P.	LARC	Lu, F. K.	NAG 1-891	5155
41	TEXAS A&M UNIVERSITY	Dittmar, J. H.	LERC	Korkan, K. D.	NAG 3-354	5157
41	TEXAS A&M UNIVERSITY	Reinmann, J. J.	LERC	Korkan, K. D.	NAG 3-626	5158
41	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Ostowari, C.	NGT 00-050-221	5204
41	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Allen, D. H.	NGT 00-050-262	5207
41	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Carlson, L.	NGT 00-050-381	5209
41	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-LE	Carlson, L. A.	NGT 00-050-114	5202
41	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-LE	Schapery, R. A.	NGT 44-001-804	5215
41	TUSKEGEE INSTITUTE	Driver, D. M.	ARC	Hebbar, S. K.	NCA 2-127	1058
41	TUSKEGEE INSTITUTE	Randall, J. L.	MSFC	Ray, P. K.	NAG 8-20	1050
41	UNIV TENNESSEE-CHAT	Bobbitt, P. J.	LARC	Wu, J. M.	NAG 1-844	5050
41	UNIV OF AKRON	Chamis, C. C.	LERC	Fertis, D. G.	NAG 3-50	4689
41	UNIV OF AKRON	Thompson, R. L.	LERC	Chang, T. Y.	NAG 3-307	4692
41	UNIV OF AKRON	Thompson, R. L.	LERC	Robinson, D. N.	NAG 3-379	4693
41	UNIV OF AKRON	Shaw, R. J.	LERC	Potapczuk, M. G.	NAG 3-416	4694
41	UNIV OF AKRON	Olsen, W.	LERC	Scavuzzo, R. J.	NAG 3-479	4695
41	UNIV OF AKRON	De Anva, R. G.	LERC	Drummond, J. E.	NAG 3-531	4696
41	UNIV OF AKRON	Chamis, C. C.	LERC	Padovan, J.	NAG 3-664	4698
41	UNIV OF AKRON	Krosel, S.	LERC	Hartley, T. T.	NAG 3-778	4700
41	UNIV OF AKRON	Arnold, S. M.	LERC	Tan, H. Q.	NAG 3-872	4702
41	UNIV OF AKRON	Thompson, R. L.	LERC	Chang, T. P.	NAG 3-901	4704
41	UNIV OF AKRON	Melcher, K. J.	LERC	Hartley, T. T.	NAG 3-904	4705
41	UNIV ALA-HUNTSVILLE	Scudder, J. D.	GSFC	Torbert, R. B.	NAG 5-986	1080
41	UNIV ALA-HUNTSVILLE	Fields, S. A.	MSFC	Torr, D. G.	NAG 8-100	1103
41	UNIV ALA-HUNTSVILLE	Houston, V. L.	MSFC	Wu, S. T.	NAS 8-36254	1148
41	UNIV ALA-UNIVERSITY	Waites, H.	MSFC	Hsia, W. S.	NAG 8-81	1180
41	UNIV OF ARIZONA	Carr, L. W.	ARC	Fung, K. Y.	NCA 2-196	1390
41	UNIV OF ARIZONA	Wingrove, R. C.	ARC	Parks, E. K.	NCC 2-329	1392
41	UNIV OF ARIZONA	Sours, W. P.	GSFC	Thompson, R. I.	NAS 5-30008	1379
41	UNIV OF ARIZONA	Groeneweg, J. F.	LERC	Kerschen, E. J.	NAG 3-357	1280
41	UNIV OF ARIZONA	Miles, J.	LERC	Peterson, R. A.	NAG 3-460	1281
41	UNIV OF ARIZONA	Stone, J. R.	LERC	Balsa, T. F.	NAG 3-485	1282
41	UNIV OF ARIZONA	Miles, J. H.	LERC	Balsa, T.	NAG 3-781	1285
41	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Ramohalli, K.	NGT 00-070-071	1421
41	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Fasel, H.	NGT 00-050-074	1406
41	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Glezer, A.	NGT 00-050-076	1407
41	UNIV CALIF-BERKELEY	Davis, S.	ARC	Corcos, G. M.	NAG 2-378	1796
41	UNIV CALIF-BERKELEY	Yee, H. C.	ARC	Holt, M.	NAG 2-425	1798
41	UNIV CALIF-BERKELEY	Schiff, L. B.	ARC	Holt, M.	NAG 2-483	1801
41	UNIV CALIF-BERKELEY	Deiwert, G. S.	ARC	Hurlbut, F. C.	NCA 2-342	1873
41	UNIV CALIF-BERKELEY	Chapman, G. T.	ARC	Humphrey, J. A.	NCC 2-340	1878
41	UNIV CALIF-BERKELEY	Dwoyer, D. L.	LARC	Holt, M.	NAG 1-725	1789
41	UNIV CALIF-BERKELEY	Wood, G. M.	LARC	Hurlbut, F. C.	NAG 1-879	1790
41	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LB	Shu, F. H.	NGT 05-003-804	1905
41	UNIV CALIF-DAVIS	Cheng, V. H.	ARC	Hess, R. A.	NAG 2-221	1910
41	UNIV CALIF-DAVIS	Bray, R. S.	ARC	Hess, R. A.	NAG 2-482	1917
41	UNIV CALIF-DAVIS	Berry, D. T.	ARC	Hess, R. A.	NAG 2-490	1918
41	UNIV CALIF-DAVIS	Rubesin, M. W.	ARC	Kollmann, W.	NCC 2-186	1937

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	UNIV CALIF-DAVIS	Chen, R.	ARC	Hess, R. A.	NCC 2-383	1939
41	UNIV CALIF-DAVIS	Salas, M. D.	LARC	Hafez, M. M.	NAG 1-669	1908
41	UNIV CALIF-DAVIS	Holmes, B. J.	LARC	Van Dam, C. P.	NAG 1-732	1909
41	UNIV CALIF-DAVIS	Claus, R. W.	LERC	Kollman, W.	NAG 3-836	1920
41	UNIV CALIF-IRVINE	Wentzel, B.	ARC	Blanks, R.	NAS 2-12834	1956
41	UNIV CALIF-L ANGELES	Iliff, K. W.	21	Balakrishnan, A. V.	NSG 4015	2065
41	UNIV CALIF-L ANGELES	Warmbrodt, W.	ARC	Friedmann, P. P.	NAG 2-209	1966
41	UNIV CALIF-L ANGELES	Miura, H.	ARC	Friedmann, P. P.	NAG 2-226	1967
41	UNIV CALIF-L ANGELES	Duke, E. L.	ARC	Vidal, J. J.	NAG 2-302	1968
41	UNIV CALIF-L ANGELES	Duke, E. L.	ARC	Levan, N.	NAG 2-441	1976
41	UNIV CALIF-L ANGELES	Jacklin, S. A.	ARC	Friedmann, P.	NAG 2-477	1979
41	UNIV CALIF-L ANGELES	Soderman, P.	ARC	Meecham, W. C.	NSG 2290	2064
41	UNIV CALIF-L ANGELES	MacAraeg, M. G.	LARC	Osher, S. J.	NAG 1-270	1962
41	UNIV CALIF-L ANGELES	Adelman, H. M.	LARC	Friedmann, P. P.	NAG 1-833	1965
41	UNIV CALIF-SAN DIEGO	Kalinowski, J. K.	GSFC	Baity, W.	NAS 5-29293	2139
41	UNIV CALIF-S BARBARA	Sobieski, J.	LARC	Vanderplaats, G. N.	NAG 1-567	2179
41	UNIV CALIF-S CRUZ	Owens, F. C.	HQ-LB	Bodenheimer, P.	NGT 05-061-801	2227
41	UNIV OF CINCINNATI	Davis, T. J.	ARC	Slater, G. L.	NAG 2-175	4717
41	UNIV OF CINCINNATI	Compton, W. B.	LARC	Rubin, S. G.	NAG 1-8	4713
41	UNIV OF CINCINNATI	Rumsey, C. L.	LARC	Ghia, K. N.	NAG 1-465	4714
41	UNIV OF CINCINNATI	Moss, J. N.	LARC	Khosla, P. K.	NAG 1-548	4715
41	UNIV OF CINCINNATI	Liu, C. H.	LARC	Ghia, K. N.	NAG 1-753	4716
41	UNIV OF CINCINNATI	Katsanis, T.	LERC	Ghia, K. N.	NAG 3-194	4718
41	UNIV OF CINCINNATI	Adamczyk, J. J.	LERC	Rubin, S. G.	NAG 3-397	4720
41	UNIV OF CINCINNATI	Thompson, R. L.	LERC	Stouffer, D. C.	NAG 3-511	4722
41	UNIV OF CINCINNATI	Benson, T. J.	LERC	Rubin, S. G.	NAG 3-716	4725
41	UNIV OF CINCINNATI	Coleman, A. D.	MSFC	Rost, R.	NAS 8-34503	4731
41	UNIV OF CINCINNATI	Owens, F. C.	HQ-LE	Ghia, K. N.	NGT 00-070-007	4737
41	UNIV COLORADO-BOLDR	Chapman, G. T.	ARC	Sather, D. P.	NAG 2-278	2309
41	UNIV COLORADO-BOLDR	Van Dalsem, W. R.	ARC	Dougherty, F. C.	NCA 2-219	2411
41	UNIV COLORADO-BOLDR	Van Dalsem, W. R.	ARC	Dougherty, F. C.	NCA 2-336	2412
41	UNIV COLORADO-BOLDR	Holst, T. L.	ARC	Chow, C. Y.	NCC 2-440	2413
41	UNIV COLORADO-BOLDR	Chapman, G. T.	ARC	Dougherty, F. C.	NCC 2-473	2414
41	UNIV COLORADO-BOLDR	Chang, I. C.	ARC	Chow, C. Y.	NCC 2-508	2415
41	UNIV COLORADO-BOLDR	Mandl, D. J.	GSFC	Hansen, E. R.	NAS 5-30067	2402
41	UNIV COLORADO-BOLDR	Maestrello, L.	LARC	Freythuth, P.	NAG 1-769	2305
41	UNIV COLORADO-BOLDR	Maestrello, L.	LARC	Biringer, S.	NAG 1-798	2306
41	UNIV COLORADO-BOLDR	Bauer, S. X.	LARC	Sobieczky, H.	NAG 1-880	2308
41	UNIV COLORADO-BOLDR	Chamis, C. C.	LERC	Felippa, C. A.	NAG 3-934	2312
41	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Dougherty, F. C.	NGT 00-050-164	2420
41	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Born, G. H.	NGT 00-050-246	2422
41	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Rosborough, G. W.	NGT 00-050-329	2426
41	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Born, G. H.	NGT 00-050-336	2427
41	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Luttges, M. W.	NGT 00-070-089	2431
41	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-LE	Born, G. H.	NGT 00-050-030	2417
41	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-LE	Culp, R. D.	NGT 00-050-067	2419
41	UNIV OF CONNECTICUT	Warmbrodt, W.	ARC	Bar-shalom, Y.	NAG 2-318	2454
41	UNIV OF CONNECTICUT	Roelke, R. J.	LERC	Bennett, J. C.	NAG 3-484	2455
41	UNIV OF CONNECTICUT	Thompson, R. L.	LERC	Jordan, E.	NAG 3-512	2456
41	UNIV OF CONNECTICUT	Thompson, R. L.	LERC	Jordan, E. H.	NAG 3-882	2458
41	UNIV OF DAYTON	Stone, J. R.	LERC	Scott, J. N.	NAG 3-526	4742
41	UNIV OF DAYTON	Potapczuk, M. G.	LERC	Scott, J. N.	NAG 3-665	4743
41	UNIV OF DAYTON	Owens, F. C.	HQ-XE	Fraker, J. R.	NGT 00-050-082	4747
41	UNIV OF FLORIDA	Chyu, W. J.	ARC	Hsu, C. C.	NAG 2-473	2631
41	UNIV OF FLORIDA	Chapman, G. T.	ARC	Clarkson, M. H.	NCA 2-42	2649
41	UNIV OF FLORIDA	Chapman, G. T.	ARC	Clarkson, M. H.	NCA 2-214	2650
41	UNIV OF FLORIDA	Aoyagi, K.	ARC	Fearn, R. L.	NCC 2-403	2653
41	UNIV OF FLORIDA	Aoyagi, K.	ARC	Fearn, R. L.	NSG 2288	2657
41	UNIV OF FLORIDA	Kjelgaard, S. O.	LARC	Fearn, R. L.	NAG 1-368	2623
41	UNIV OF FLORIDA	Sleeper, R. K.	LARC	Hajela, P.	NAG 1-688	2626

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	UNIV OF FLORIDA	Sobieski, J.	LARC	Hajela, P.	NAG 1-850	2630
41	UNIV OF FLORIDA	Roelke, R. J.	LERC	Shih, T. I.	NAG 3-828	2633
41	UNIV OF FLORIDA	Reinmann, J. J.	LERC	Yih, C. S.	NAG 3-874	2634
41	UNIV OF HAWAII-MANOA	Sours, W. P.	GSFC	Hall, D. N.	NAS 5-30021	2800
41	UNIV HOUSTON-HOUSTON	Kim, J. J.	ARC	Hussain, A. K.	NCA 2-112	5257
41	UNIV HOUSTON-HOUSTON	Kim, J.	ARC	Hussain, A. K.	NCA 2-317	5258
41	UNIV HOUSTON-HOUSTON	Rice, E.	LERC	Hussain, A. K.	NAG 3-639	5225
41	UNIV ILLINOIS-CHICGO	Yu, Y. H.	ARC	Cha, S.	NAG 2-388	2911
41	UNIV ILLINOIS-URBANA	Erickson, L. L.	ARC	Lee, K. D.	NCA 2-92	2952
41	UNIV ILLINOIS-URBANA	Moin, P.	ARC	Adrian, R. J.	NCA 2-131	2953
41	UNIV ILLINOIS-URBANA	Sewall, W. G.	LARC	Chow, W. L.	NAG 1-677	2926
41	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Beddini, R. A.	NGT 00-050-363	2964
41	UNIV OF IOWA	Giles, G. L.	LARC	Haug, E. J.	NAG 1-215	3082
41	UNIV OF IOWA	Owens, F. C.	HQ-LE	Oberley, L. W.	NGT 16-003-800	3119
41	UNIV OF KANSAS	Stroub, R. H.	ARC	Lan, C. E.	NCC 2-175	3149
41	UNIV OF KANSAS	Lebacqz, J. V.	ARC	Roskam, J.	NCC 2-242	3150
41	UNIV OF KANSAS	Stroub, R. H.	ARC	Fortin, P. E.	NCC 2-351	3151
41	UNIV OF KANSAS	Gupta, K. K.	ARC	Fortin, P.	NCC 2-396	3152
41	UNIV OF KANSAS	Felker, F. F.	ARC	Van Aken, J. M.	NCC 2-417	3153
41	UNIV OF KANSAS	Williams, L. J.	LARC	Roskan, J.	NAG 1-345	3128
41	UNIV OF KANSAS	Liu, C. H.	LARC	Lan, C. E.	NAG 1-455	3129
41	UNIV OF KANSAS	Paulson, J. W., Jr.	LARC	Lan, C. E.	NAG 1-616	3130
41	UNIV OF KANSAS	Sellers, W. L.	LARC	Lan, C. E.	NAG 1-635	3131
41	UNIV OF KANSAS	Krist, S.	LARC	Lan, C. E.	NAG 1-837	3133
41	UNIV OF KANSAS	Hastings, E. C.	LARC	Farokhi, S.	NAG 1-867	3134
41	UNIV OF KANSAS	Middleton, D. B.	LARC	Downing, D. R.	NCC 1-79	3148
41	UNIV OF KANSAS	Gainer, T. G.	LARC	Lan, C. E.	NSG 1629	3158
41	UNIV OF KANSAS	Towne, C. E.	LERC	Farokhi, S.	NAG 3-841	3136
41	UNIV OF KANSAS	Rice, E. J.	LERC	Farokhi, S.	NCC 3-56	3154
41	UNIV MARYLAND-COL PK	Graham, T. A.	ARC	Chopra, I.	NAG 2-409	3297
41	UNIV MARYLAND-COL PK	Deiwert, G. S.	ARC	Anderson, J. D.	NAG 2-529	3298
41	UNIV MARYLAND-COL PK	Mantay, W. R.	LARC	Chopra, I.	NAG 1-375	3287
41	UNIV MARYLAND-COL PK	Gnoffo, P. A.	LARC	Anderson, J. D.	NAG 1-620	3290
41	UNIV MARYLAND-COL PK	Nemeth, M. P.	LARC	Hyer, M. W.	NAG 1-665	3291
41	UNIV MARYLAND-COL PK	Dicarlo, D. J.	LARC	Winkelmann, A. E.	NAG 1-681	3292
41	UNIV MARYLAND-COL PK	Walsh, J. L.	LARC	Chopra, I.	NAG 1-739	3293
41	UNIV MARYLAND-COL PK	Nixon, M. W.	LARC	Chodra, I.	NAG 1-853	3294
41	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Winkelmann, A. E.	NGT 00-070-090	3404
41	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-LE	Donaldson, B.	NGT 21-002-823	3410
41	UNIV MD-EASTRN SHORE	Noonan, K. W.	LARC	Barlow, J. B.	NCC 1-105	3418
41	UNIV OF MIAMI	Miller, T.	MSFC	Branscome, L.	NAG 8-656	2663
41	UNIV MICH-ANN ARBOR	Perez, S. E.	LARC	Clark, S. K.	NSG 1607	3805
41	UNIV MICH-ANN ARBOR	Steinetz, B. M.	LERC	Kikuchi, N.	NAG 3-661	3727
41	UNIV MICH-ANN ARBOR	Moore, T. E.	MSFC	Gombosi, T. I.	NCC 8-1	3787
41	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LB	Shin, K. G.	NGT 23-005-801	3803
41	U MINN-MNPLS-ST PAUL	Moin, P.	ARC	Lundgren, T. S.	NCA 2-329	3840
41	U MINN-MNPLS-ST PAUL	Goodrich, W.	JSC	Tezduyar, T. E.	NAS 9-17892	3838
41	U MINN-MNPLS-ST PAUL	Bacon, B. J.	LARC	Garrard, W. L.	NAG 1-821	3814
41	UNIV MO-COLUMBIA	Brown, J. L.	ARC	Miles, J. B.	NCC 2-199	3880
41	UNIV MO-ROLLA	Dittmar, J. H.	LERC	Eversman, W.	NAG 3-178	3885
41	UNIV NEBRASKA-LINCLN	Gupta, K. K.	ARC	Martin, C. W.	NCA 2-147	3955
41	UNIV NEBRASKA-LINCLN	Gupta, K. K.	ARC	Martin, C. W.	NCA 2-318	3957
41	UNIV OF NEVADA-RENO	Bencze, D. P.	ARC	Rose, W. C.	NCC 2-507	3968
41	UNIV NEW HAMP-DURHAM	Harvey, W. D.	LARC	Biringer, S.	NAG 1-462	3985
41	UNIV OF NOTRE DAME	Schiff, L. B.	ARC	Nelson, R. C.	NAG 2-258	3046
41	UNIV OF NOTRE DAME	Schreiner, J. A.	ARC	Nelson, R. C.	NCA 2-162	3050
41	UNIV OF NOTRE DAME	Brandon, J. M.	LARC	Nelson, R. C.	NAG 1-727	3045
41	UNIV OF NOTRE DAME	Somers, D. M.	LARC	Mueller, T. J.	NSG 1419	3052
41	UNIV OF NOTRE DAME	Groeneweg, J. F.	LERC	Atassi, H. M.	NAG 3-732	3048
41	UNIV OF NOTRE DAME	Owens, F. C.	HQ-LE	Nelson, R. C.	NGT 00-070-019	3051

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	UNIV OKLAHOMA-NORMAN	Bauer, S. X.	LARC	Emanuel, G.	NAG 1-886	4786
41	UNIV OF PACIFIC	Steinle, F. W.	ARC	Murthy, S. V.	NCC 2-357	2232
41	UNIV OF PITTSBURGH	Kiraly, L. J.	LERC	Smolinski, P.	NAG 3-829	4955
41	U PUERTO RICO-MAYAGZ	Alton, L. R.	ARC	Hess, R. A.	NCC 2-496	5923
41	UNIV OF QUEENSLAND	Anderson, G. Y.	LARC	Stalker, R. J.	NAGW 674	5930
41	UNIV OF SANTA CLARA	Tobak, M.	ARC	Unal, A.	NCA 2-48	2239
41	UNIV OF SOUTH DAKOTA	Rhea, D. C.	21	Granaas, M. M.	NAG 2-492	5037
41	UNIV OF SOUTHAMPTON	Boyden, R. P.	LARC	Goodyer, M. J.	NSG 7172	5944
41	UNIV OF SOUTHAMPTON	Boyden, R. P.	LARC	Goodyer, M. J.	NSG 7523	5945
41	UNIV OF SOUTHERN CAL	Moin, P.	ARC	Huerre, P.	NCA 2-173	2265
41	UNIV OF SOUTHERN CAL	Seiner, J. M.	LARC	Ho, C. M.	NAG 1-819	2253
41	UNIV OF SOUTHERN CAL	White, A. K.	LERC	Muntz, E. P.	NAS 3-25068	2262
41	UNIV STHN COLORADO	Corliss, L. D.	ARC	Dunn, W. R.	NCC 2-276	2451
41	UNIV OF SYDNEY	Jones, J. J.	LARC	Bird, G. A.	NAGW 728	5932
41	UNIV TENNESSEE-KNOXV	Lawing, P. L.	LARC	Wu, J. M.	NAG 1-747	5055
41	UNIV TENNESSEE-KNOXV	Waggoner, E. G.	LARC	Steinhoff, J. S.	NAG 1-799	5056
41	UNIV TENNESSEE-KNOXV	Waggoner, E. G.	LARC	Steinhoff, J. S.	NAG 1-898	5058
41	UNIV TEXAS-ARLINGTON	Rubesin, M. W.	ARC	Payne, F. R.	NCC 2-386	5277
41	UNIV TEXAS-AUSTIN	Tobak, M.	ARC	Panton, R. L.	NAG 2-398	5283
41	UNIV TEXAS-AUSTIN	Smith, S. C.	ARC	Stearman, R. O.	NCA 2-148	5340
41	UNIV TEXAS-AUSTIN	Chapman, G.	ARC	Carey, G.	NCA 2-224	5343
41	UNIV TEXAS-AUSTIN	Kalinowski, K.	GSFC	Jefferys, W. H.	NAS 5-29285	5328
41	UNIV TEXAS-AUSTIN	Kalinowski, J. K.	GSFC	Lambert, D.	NAS 5-29410	5331
41	UNIV TEXAS-AUSTIN	Gist, A. D.	JSC	Tesar, D.	NAG 9-188	5307
41	UNIV TEXAS-AUSTIN	Sunkel, J. W.	JSC	Wie, B.	NAG 9-279	5316
41	UNIV TEXAS-AUSTIN	Bishop, L. R.	JSC	Speyer, J. L.	NAG 9-288	5318
41	UNIV TEXAS-AUSTIN	Goodrich, W. D.	JSC	Bertin, J. J.	NAS 9-13680	5336
41	UNIV TEXAS-AUSTIN	Kanipe, D. B.	JSC	Bertin, J. J.	NAS 9-17499	5338
41	UNIV TEXAS-AUSTIN	Allison, D. O.	LARC	Wilson, D. E.	NAG 1-556	5278
41	UNIV TEXAS-AUSTIN	Anders, J. B.	LARC	Panton, R. L.	NAG 1-610	5279
41	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Tapley, B. D.	NGT 00-050-155	5348
41	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Dolling, D. S.	NGT 00-050-172	5349
41	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Westkaemper, J.	NGT 00-050-222	5352
41	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Bertin, J. J.	NGT 00-070-032	5361
41	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-LE	Fowler, W. T.	NGT 00-050-062	5347
41	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-LE	Nozette, S.	NGT 00-070-014	5358
41	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-LE	Nozette, S.	NGT 00-070-023	5359
41	UNIV TEXAS-S ANTONIO	Chamis, C. C.	LERC	Boyce, L.	NAG 3-867	5429
41	UNIV OF TOLEDO	Vargas, M.	LERC	Dewitt, K. J.	NAG 3-72	4749
41	UNIV OF TOLEDO	Kaza, K. R.	LERC	Keith, T. G.	NAG 3-742	4755
41	UNIV OF TOLEDO	Luidens, R. W.	LERC	Keith, T. G.	NAG 3-937	4760
41	UNIV OF TOLEDO	Cassidy, J.	LERC	Dewitt, K. J.	NCC 3-69	4772
41	UNIV OF TOLEDO	Brown, G. V.	LERC	Keith, T. G., Jr.	NSG 3139	4774
41	UNIV OF VIRGINIA	Northam, G. B.	LARC	McDaniel, J. C.	NAG 1-373	5602
41	UNIV OF VIRGINIA	Northam, G. B.	LARC	McDaniel, J. C.	NAG 1-795	5607
41	UNIV OF VIRGINIA	Starnes, J. H., Jr.	LARC	Herakovich, C. T.	NAG 1-841	5608
41	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	McDaniel, J. C.	NGT 00-050-142	5641
41	UNIV OF WASHINGTON	King, L. S.	ARC	Russell, D. A.	NAG 2-283	5735
41	UNIV OF WASHINGTON	Martin, J. A.	LARC	Hertzberg, A.	NAG 1-746	5733
41	UNIV OF WASHINGTON	Hingst, W. R.	LERC	Childs, M. E.	NAG 3-376	5736
41	UNIV OF WATERLOO	Tobak, M.	ARC	Hui, W. H.	NAGW 575	5936
41	UNIV OF WATERLOO	Murphy, P. C.	LARC	Vidyasagar, M.	NAGW 961	5937
41	UNIV OF WYOMING	O'brien, T. K.	LARC	Zimmerman, R. S.	NAG 1-674	5911
41	VANDERBILT UNIVERSTY	Moss, J. N.	LARC	Potter, J. L.	NAG 1-549	5078
41	VANDERBILT UNIVERSTY	Wortham, G. B.	LARC	Pitz, R. W.	NAG 1-770	5079
41	VANDERBILT UNIVERSTY	Patterson, H.	MSFC	Hargava, V. B.	NAS 8-37764	5086
41	VIRGINIA POLY INST	Aoyagi, K.	ARC	Schetz, J. A.	NAG 2-256	5691
41	VIRGINIA POLY INST	Gelhausen, P. A.	ARC	Myklebust, R. A.	NAG 2-461	5692
41	VIRGINIA POLY INST	Starnes, J. H., Jr.	LARC	Haftka, R. T.	NAG 1-168	5658
41	VIRGINIA POLY INST	Adelman, H. M.	LARC	Haftka, R. T.	NAG 1-224	5659

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	VIRGINIA POLY INST	Silcox, R. J.	LARC	Fuller, C. R.	NAG 1-390	5663
41	VIRGINIA POLY INST	Brooks, T. F.	LARC	Simpson, R. L.	NAG 1-446	5664
41	VIRGINIA POLY INST	Schoenster, J. A.	LARC	Wing-fai Ng	NAG 1-486	5665
41	VIRGINIA POLY INST	Richardson, P. F.	LARC	Grossman, B.	NAG 1-505	5666
41	VIRGINIA POLY INST	Starnes, J. H., Jr.	LARC	Johnson, E. R.	NAG 1-537	5668
41	VIRGINIA POLY INST	Adelman, H. M.	LARC	Haftka, R. T.	NAG 1-603	5670
41	VIRGINIA POLY INST	Starnes, J. H.	LARC	Gurdal, Z.	NAG 1-643	5671
41	VIRGINIA POLY INST	Knight, N. F., Jr.	LARC	Griffin, O. H., Jr.	NAG 1-675	5673
41	VIRGINIA POLY INST	Holmes, B. J.	LARC	Nayfeh, A. H.	NAG 1-714	5674
41	VIRGINIA POLY INST	Stein, M.	LARC	Librescu, L.	NAG 1-749	5676
41	VIRGINIA POLY INST	Morrisette, E. L.	LARC	Schetz, J. A.	NAG 1-751	5677
41	VIRGINIA POLY INST	Rudy, D. H.	LARC	Walters, R. W.	NAG 1-776	5680
41	VIRGINIA POLY INST	Anders, J. B.	LARC	Schetz, J. A.	NAG 1-843	5685
41	VIRGINIA POLY INST	Thomas, J. L.	LARC	Walters, R. W.	NAG 1-866	5687
41	VIRGINIA POLY INST	Arbuckle, P. D.	LARC	Stafford, H. L.	NAG 1-873	5688
41	VIRGINIA POLY INST	Nemeth, M. P.	LARC	Hyer, M. W.	NAG 1-901	5690
41	VIRGINIA POLY INST	Prior, E. J.	LARC	Ng, W.	NAS 1-18106	5708
41	VIRGINIA POLY INST	Prior, E. J.	LARC	Unavailable	NAS 1-18471	5709
41	VIRGINIA POLY INST	Farley, G. L.	LARC	Hyer, M. W.	NCC 1-130	5711
41	VIRGINIA POLY INST	Kunik, W. G.	LERC	Ng, W.	NAG 3-676	5695
41	VIRGINIA POLY INST	Kunik, W. G.	LERC	Ng, W. F.	NAG 3-765	5696
41	VIRGINIA POLY INST	Tweedt, D. L.	LERC	Ng, W. F.	NAG 3-830	5697
41	VIRGINIA POLY INST	Wood, J. R.	LERC	Ng, W.	NAG 3-870	5698
41	VIRGINIA POLY INST	Schumann, L. F.	LERC	Moore, J.	NAG 3-919	5699
41	VIRGINIA POLY INST	Hopkins, D. A.	LERC	Reddy, J. N.	NAG 3-933	5700
41	WENTWORTH INST TECH	White, B.	HQ-U	Mullins, R. T.	NGT 22-005-900	3675
41	WASHINGTON ST UNIV	Neuman, F.	ARC	Grantham, W. J.	NCA 2-191	5817
41	WASHINGTON ST UNIV	Bach, R. E.	ARC	Grantham, W. J.	NCA 2-216	5818
41	WASHINGTON UNIVERSTY	Knight, N. F.	LARC	Szabo, B. A.	NAG 1-639	3889
41	WAYNE STATE UNIV	Maestrello, L.	LARC	Chow, P.	NAG 1-460	3807
41	WEST VIRGINIA UNIV	Campbell, R. L.	LARC	Kuhlman, J. M.	NAG 1-625	5821
41	WEST VIRGINIA UNIV	Paulson, J. W., Jr.	LARC	Kuhlman, J. M.	NAG 1-748	5823
41	WEST VIRGINIA UNIV	Owens, F. C.	HQ-LE	Sivaneri, N.	NGT 49-001-802	5825
41	WESTERN MICHIGAN U	Kempel, R. W.	ARC	Alag, G. S.	NCC 2-362	3811
41	WESTERN NEW ENG COL	Bishop, A. R.	LERC	Presz, W. M.	NAG 3-610	3676
41	WICHITA STATE UNIV	Reinmann, J.	LERC	Zumwalt, G. W.	NAG 3-284	3160
41	WICHITA STATE UNIV	Bidwell, C. S.	LERC	Zumwalt, G. W.	NAG 3-566	3161
41	WICHITA STATE UNIV	Bidwell, C. S.	LERC	Zumwalt, G. W.	NAG 3-684	3162
41	YALE UNIVERSITY	Mellott, M. M.	HQ-ES	Demarque, P.	NAGW 778	2468
42	AUBURN UNIV-AUBURN	Dabbs, J. R.	MSFC	Greene, M. E.	NAG 8-636	1023
42	AUBURN UNIV-AUBURN	Oran, W. A.	HQ-IC	Askew, R.	NAGW 1192	1028
42	CARNEGIE-MELLON UNIV	Juday, R.	JSC	Kumar, V.	NAG 9-247	4833
42	CARNEGIE-MELLON UNIV	Horta, L. G.	LARC	Griffin, J. H.	NAG 1-612	4823
42	CATHOLIC UNIVERSITY	Ormes, J. F.	GSFC	Dame, R. E.	NAG 5-848	2506
42	COLORADO STATE UNIV	Patterson, M. J.	LERC	Wilbur, P. J.	NAG 3-776	2280
42	COLUMBIA UNIVERSITY	Juang, J. N.	LARC	Longman, R. W.	NAG 1-649	4135
42	DREXEL UNIVERSITY	Juang, J. N.	LARC	Yousuff, A.	NAG 1-622	4839
42	GEORGE WASHINGTON U	Avery, D. E.	LARC	Liebowitz, H.	NCC 1-104	2546
42	HOWARD UNIVERSITY	Alcorn, G.	GSFC	Chiang, B.	NAG 5-390	2559
42	IOWA STATE UNIV	Green, M. J.	ARC	Tannehill, J. C.	NAG 2-502	3061
42	LAMAR UNIVERSITY	Hamilton, D. A.	JSC	Corder, P.	NAG 9-286	5104
42	MASS INST OF TECH	Kostiuk, T.	GSFC	Spears, D.	NAS 5-28564	3594
42	MASS INST OF TECH	Hibbard, W.	GSFC	Bradt, H.	NAS 5-29116	3595
42	MASS INST OF TECH	McCoy, J. E.	JSC	Hastings, D.	NAG 9-132	3556
42	MASS INST OF TECH	Kaluzienski, L. J.	HQ-EZ	Knight, F.	NAGW 1168	3581
42	MASS INST OF TECH	Montemerio, M.	HQ-RC	Mar, J. W.	NAGW 21	3562
42	NEW MEX ST U-LAS CR	Ormes, J. F.	GSFC	Golden, R. L.	NAG 5-847	4076
42	NO CAR A&T STATE U	Montgomery, R. C.	LARC	Abu-saba, E.	NAG 1-405	4415
42	NO CAR A&T STATE U	Juang, J. N.	LARC	Lebby, G.	NAG 1-870	4422
42	NO CAROLINA STATE U	Rowell, L. F.	LARC	Silverberg, L. M.	NCC 1-103	4453

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
42	NO CAROLINA STATE U	Sparks, D. W.	LARC	Silverberg, L.	NCC 1-116	4456
42	NORTHWESTERN UNIV	Chamis, C. C.	LERC	Belytschko, T.	NAG 3-822	2829
42	OHIO STATE UNIV	Montgomery, R. C.	LARC	Ozguner, U.	NAG 1-720	4627
42	OHIO STATE UNIV	Montgomery, R. C.	LARC	Ozguner, U.	NCC 1-108	4670
42	OLD DOMINION UNIV	Juang, J. N.	LARC	Huang, J. K.	NAG 1-655	5547
42	OLD DOMINION UNIV	Juang, J. N.	LARC	Huang, J. K.	NAG 1-830	5561
42	OLD DOMINION UNIV	Clark, L. G.	LARC	Alberts, T. E.	NAS 1-18687	5572
42	PRINCETON UNIVERSITY	Balkanyi, L. R.	LERC	Mease, K.	NAG 3-915	4026
42	PURDUE UNIVERSITY	Williams, J. P.	LARC	Skelton, R. E.	NAG 1-468	2991
42	RICE UNIVERSITY	Kalinowski, J. K.	GSFC	O'dell, C. R.	NAS 5-29451	5128
42	RICE UNIVERSITY	Cooper, P. A.	LARC	Spanos, P. D.	NAG 1-766	5111
42	GEORGIA INST OF TECH	Moeroer, D. D.	LARC	Calise, A. J.	NAG 1-660	2699
42	STANFORD UNIVERSITY	Lemke, L. G.	ARC	Banks, P. M.	NCA 2-146	1688
42	STANFORD UNIVERSITY	Lemke, L. G.	ARC	Powell, J. D.	NCA 2-208	1698
42	STANFORD UNIVERSITY	Lum, H.	ARC	Cannon, R. H.	NCC 2-333	1742
42	STANFORD UNIVERSITY	Lemke, L. G.	ARC	Powell, J. D.	NCC 2-389	1746
42	STANFORD UNIVERSITY	Lemke, L. G.	ARC	Powell, J. D.	NCC 2-528	1755
42	STANFORD UNIVERSITY	Mulac, M. W.	LERC	Breakwell, J. V.	NAG 3-826	1639
42	STANFORD UNIVERSITY	Mellott, M. M.	HQ-EE	Banks, P. M.	NAGW 235	1652
42	TENNESSEE STATE UNIV	Juang, J. N.	LARC	Keel, L.	NAG 1-863	5043
42	TEXAS A&M UNIVERSITY	Rocha, R.	JSC	Gerhold, C.	NAS 9-17972	5200
42	TEXAS A&M UNIVERSITY	Fox, T. H.	MSFC	Noah, S. T.	NAS 8-37465	5197
42	UNIV ALA-HUNTSVILLE	Clark, L. G.	LARC	Alexander, J. I.	NAS 1-18683	1139
42	UNIV OF ARIZONA	Myers, I. T.	LERC	Maisel, J.	NAG 3-714	1283
42	UNIV OF ARIZONA	Moore, T. E.	MSFC	Sandel, B. R.	NAG 8-110	1303
42	UNIV CALIF-BERKELEY	Clark, L. G.	LARC	Rubinsky, B.	NAS 1-18686	1839
42	UNIV CALIF-L ANGELES	Austin, J. G.	MSFC	Apostolakis, G. E.	NAS 8-37750	2040
42	UNIV CALIF-SAN DIEGO	Hibbard, W.	GSFC	Rothschild, R.	NAS 5-29117	2138
42	UNIV CALIF-SAN DIEGO	Roberts, B. B.	JSC	Arnold, J. R.	NAG 9-186	2108
42	UNIV OF DELAWARE	Ormes, J. A.	GSFC	Evenson, P.	NAG 5-856	2482
42	UNIV OF EVANSVILLE	Tacina, R. R.	LERC	Riley, B.	NAG 3-746	3044
42	UNIV HOUSTON-HOUSTON	Wheelock, C. B.	JSC	Eichhorn, R.	NAG 9-165	5229
42	UNIV ILLINOIS-URBANA	Malin, J. T.	JSC	Forbus, K. D.	NAG 9-137	2945
42	UNIV ILLINOIS-URBANA	Mulac, M. W.	LERC	Conway, B. A.	NAG 3-805	2939
42	UNIV MICH-ANN ARBOR	Way, S. H.	GSFC	Carignan, G. R.	NAS 5-30112	3776
42	UNIV OF NEW MEXICO	Duke, M. B.	JSC	Burns, J. O.	NAG 9-245	4100
42	UNIV TEXAS-AUSTIN	Rocha, R.	JSC	Craig, R.	NAS 9-17254	5337
42	UNIV OF VIRGINIA	Owens, F. C.	HQ-LE	Hudson, J. L.	NGT 00-050-105	5638
42	UNIV OF WASHINGTON	Conway, E. J.	LARC	Hertzberg, A.	NAG 1-327	5731
42	UNIV WISC-MADISON	Leckrone, D. A.	GSFC	Bless, R.	NAS 5-29448	5886
42	UTAH STATE UNIV	Figueroa, O.	GSFC	Haycock, R.	NAS 5-29422	5460
42	UTAH STATE UNIV	Clark, L. G.	LARC	Redd, F. J.	NAS 1-18682	5459
42	VIRGINIA POLY INST	Williams, J. P.	LARC	Meirovitch, L.	NAG 1-225	5660
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Lindner, D. K.	NAG 1-719	5675
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Lindner, D. K.	NAG 1-840	5684
42	YORK UNIVERSITY	Kalinowski, J. K.	GSFC	Caldwell, J. J.	NAS 5-30294	5938
43	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Tadros, S. H.	NAG 8-90	1009
43	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-XE	Tatarchuk, B. J.	NGT 00-050-374	1044
43	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-LE	Tatarchuk, B. J.	NGT 01-003-801	1046
43	CASE WESTERN RESERVE	Hagedorn, N. H.	LERC	Tryk, D. A.	NAG 3-694	4501
43	CASE WESTERN RESERVE	Owens, F. C.	HQ-XE	Qutubuddin, S.	NGT 00-050-141	4563
43	CLARKSON UNIVERSITY	Reeves, F.	MSFC	Wilcox, W. R.	NAG 8-480	4124
43	CLARKSON UNIVERSITY	Grant, H.	MSFC	Wilcox, W. R.	NAG 8-541	4125
43	CLARKSON UNIVERSITY	Owens, F. C.	HQ-XE	Subramanian, R. S.	NGT 00-050-212	4129
43	CLARKSON UNIVERSITY	Owens, F. C.	HQ-XE	Subramanian, R. S.	NGT 00-050-213	4130
43	CLARKSON UNIVERSITY	Owens, F. C.	HQ-XE	Wilcox, W. R.	NGT 00-050-310	4131
43	CLARKSON UNIVERSITY	Owens, F. C.	HQ-LE	Subramanian, R. S.	NGT 33-011-801	4132
43	CLEMSON UNIV-CLEMSON	Baucorn, R. M.	LARC	Edie, D. D.	NAG 1-680	5008
43	CLEVELAND STATE UNIV	Rutledge, S. K.	LERC	Hambourger, P. D.	NCC 3-19	4588
43	CLEVELAND STATE UNIV	Bents, D. J.	LERC	Coulman, G.	NCC 3-23	4589

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
43	CLEVELAND STATE UNIV	Hurwitz, F. I.	LERC	Andrist, A. H.	NCC 3-63	4599
43	CORNELL UNIVERSITY	Kassemi, S. A.	LERC	Steen, P. H.	NAG 3-801	4192
43	HAMPTON UNIVERSITY	Northam, G. B.	LARC	Adeyiga, A.	NAG 1-767	5513
43	JOHNS HOPKINS UNIV	Yi, T. Y.	GSFC	Prentice, G.	NAG 5-877	3240
43	LEHIGH UNIVERSITY	Kornfeld, D. M.	MSFC	Vanderitoff, J. W.	NAS 8-36286	4857
43	LA ST U&A&M COL-BRGE	Lezberg, E. A.	LERC	Frenklach, M.	NAG 3-477	3178
43	MASS INST OF TECH	Verostko, C. E.	JSC	Tester, J. W.	NAG 9-252	3559
43	MURRAY STATE U-KY	Kelliner, W. C.	LARC	Maddox, W. E.	NCC 1-114	3164
43	NO CAROLINA STATE U	Hagedurn, N.	LERC	Fedkiw, P. S.	NAG 3-649	4439
43	POLY INST OF NY	Owens, F. C.	HQ-LE	Mijovic, J.	NGT 00-050-122	4285
43	PRINCETON UNIVERSITY	Kiser, J. D.	LERC	Debenedetti, P. G.	NAG 3-859	4025
43	PRINCETON UNIVERSITY	Snyder, R. S.	MSFC	Saville, D. A.	NAG 8-749	4034
43	STANFORD UNIVERSITY	Cooper, D. M.	ARC	Boudart, M.	NCA 2-53	1679
43	STATE UNIV NY-BUFFAL	Dicarlo, J. A.	LERC	Hlavacek, V.	NAG 3-863	4343
43	STATE UNIV NY-BUFFAL	Petrasek, D. W.	LERC	Hlavacek, V.	NAG 3-897	4344
43	TEXAS A&M UNIVERSITY	Darcy, E.	JSC	Martin, C. R.	NAG 9-173	5175
43	TEXAS A&M UNIVERSITY	Cullingford, H. S.	JSC	Peterson, G. P.	NAG 9-251	5179
43	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	White, R. E.	NGT 00-070-057	5212
43	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-LE	White, R. E.	NGT 00-070-011	5211
43	UNIV ALA-HUNTSVILLE	Wilhold, G. A.	MSFC	Chung, T. J.	NAG 8-95	1100
43	UNIV CALIF-SAN DIEGO	Schryer, D. R.	LARC	Herz, R. K.	NAG 1-823	2075
43	UNIV CALIF-SAN DIEGO	Schryer, D. R.	LARC	Herz, R. K.	NAG 1-900	2077
43	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Davis, R. H.	NGT 00-050-367	2428
43	UNIV OF DAYTON	Mullins, W. H.	MSFC	Harvey, J. A.	NAS 8-36280	4746
43	UNIV OF FLORIDA	Schryer, D. R.	LARC	Hoflund, G. B.	NAG 1-794	2628
43	UNIV OF FLORIDA	Owens, F. C.	HQ-XE	Hoflund, G. B.	NGT 00-070-064	2656
43	UNIV HOUSTON-HOUSTON	Darcy, E.	JSC	Pollard, R.	NAG 9-178	5230
43	UNIV HOUSTON-HOUSTON	Kroll, K.	JSC	Lienhard, J. H.	NAS 9-17442	5255
43	UNIV HOUSTON-HOUSTON	McQuillen, J. B.	LERC	Dukler, A. E.	NAG 3-510	5224
43	UNIV MICH-ANN ARBOR	Hardy, T. L.	LERC	Sonntag, R. E.	NAG 3-850	3729
43	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LE	Fogler, H. S.	NGT 00-050-095	3793
43	UNIV MO-COLUMBIA	Owens, F. C.	HQ-XE	Marrero, T. R.	NGT 00-050-061	3881
43	UNIV MO-ROLLA	Pellett, G. L.	LARC	Isaac, K. M.	NAG 1-861	3884
43	UNIV OF PENNSYLVANIA	Owens, F. C.	HQ-XE	Forsman, W.	NGT 00-050-139	4950
43	UNIV TENNESSEE-KNOXV	McCay, T. D.	MSFC	George, P. E.	NAG 8-542	5061
43	UNIV TEXAS-AUSTIN	Le, M.	JSC	Bartlow, J. W.	NAG 9-202	5312
43	UNIV OF TOLEDO	Chai, A. T.	LERC	Oliver, D. O.	NAG 3-910	4759
43	UNIV OF TOLEDO	Owens, F. C.	HQ-XE	Dewitt, K. J.	NGT 00-050-371	4773
43	UNIV OF UTAH	Clark, I. O.	LARC	Stringfellow, G. B.	NAG 1-608	5432
43	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Lilleleht, L. U.	NGT 00-050-334	5643
43	WORCESTER POLY INST	Oran, W. A.	HQ-IC	Custer, R. L.	NAGW 974	3691
43	YALE UNIVERSITY	Owens, F. C.	HQ-XE	Rosner, D. E.	NGT 00-050-377	2475
44	CLEVELAND STATE UNIV	Vannucci, R. D.	LERC	Hemann, J. H.	NCC 3-68	4601
44	HOWARD UNIVERSITY	Burgess, A.	GSFC	Spencer, M. G.	NAG 5-246	2558
44	NEW MEX ST U-LAS CR	Wydeven, T.	ARC	Jacquez, R. B.	NCA 2-328	4090
44	OHIO UNIVERSITY	Kiraly, L. J.	LERC	Aki, F. A.	NAG 3-902	4682
44	OLD DOMINION UNIV	Storaasli, O. O.	LARC	Nguyen, D. T.	NAG 1-858	5565
44	TEXAS A&M UNIVERSITY	Tanner, J. A.	LARC	Tielking, J. T.	NAG 1-644	5151
44	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-LE	Sture, S.	NGT 00-070-001	2429
44	UNIV HOUSTON-HOUSTON	Sauer, R. L.	JSC	Symons, J. M.	NAG 9-284	5248
44	UNIV OF PITTSBURGH	Bivins, R.	HQ	McWilliams, P. A.	NASW 4204	4959
44	UNIV TEXAS-AUSTIN	Salzman, J. A.	LERC	Koschmieder, E. L.	NAG 3-921	5290
45	ALABAMA A&M UNIV	Stossinopoulos, E.	GSFC	McQuire, S.	NAG 5-578	1000
45	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Murty, S. S.	NSG 8037	1020
45	ARIZONA STATE UNIV	Gilreath, M. C.	LARC	Balanis, C. A.	NAG 1-562	1209
45	ARIZONA STATE UNIV	Brinker, D. J.	LERC	Wang, E. Y.	NAG 3-383	1213
45	ARIZONA STATE UNIV	Wenberg, I.	LERC	Shen, C. C.	NAG 3-650	1217
45	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-XE	Tzeng, Y.	NGT 00-050-354	1042
45	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-XE	Tzeng, Y.	NGT 00-070-094	1045
45	BRANDEIS UNIVERSITY	Owens, F. C.	HQ-LE	Waltz, D.	NGT 00-050-068	3440

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
45	CAPITOL INST OF TECH	Lopez, H.	GSFC	Nolan, W.	NAS 5-29245	3224
45	CARNEGIE-MELLON UNIV	Padilla, P. A.	LARC	Siewiorek, D. P.	NAG 1-190	4821
45	CARNEGIE-MELLON UNIV	Bryant, W. H.	LARC	Casasent, D.	NAG 1-903	4824
45	CASE WESTERN RESERVE	Lesco, D.	LERC	Edwards, R. V.	NAG 3-2	4482
45	CASE WESTERN RESERVE	Kish, J. A.	LERC	Loparo, K. A.	NAG 3-800	4519
45	CASE WESTERN RESERVE	Leonard, R. F.	LERC	Tabib-azar, M.	NAG 3-816	4522
45	CASE WESTERN RESERVE	Ratajczak, A. J.	LERC	Ostrach, S.	NAG 3-886	4528
45	CASE WESTERN RESERVE	Dolce, J. L.	LERC	Pao, Y.	NAG 3-922	4530
45	CASE WESTERN RESERVE	Ponchak, G. E.	LERC	Collin, R. E.	NCC 3-29	4538
45	CASE WESTERN RESERVE	Bhasin, K. B.	LERC	Gordon, W. L.	NCC 3-40	4540
45	CASE WESTERN RESERVE	Bhasin, K. B.	LERC	Ferendeci, A. M.	NCC 3-54	4543
45	CASE WESTERN RESERVE	Stankiewicz, N.	LERC	Ferendeci, A. M.	NCC 3-57	4544
45	CASE WESTERN RESERVE	Stankiewicz, N.	LERC	Ferendeci, A. M.	NCC 3-79	4548
45	CASE WESTERN RESERVE	Bhasin, K. B.	LERC	Claspy, P. C.	NCC 3-99	4554
45	CATHOLIC UNIVERSITY	Fedor, J. V.	GSFC	Baz, A.	NAG 5-749	2503
45	CATHOLIC UNIVERSITY	Premack, T.	GSFC	Nguyen, C. C.	NAG 5-780	2504
45	CITY COLLEGE OF N Y	Owens, F. C.	HQ-XE	Alfano, R. R.	NGT 00-070-026	4116
45	CLARKSON UNIVERSITY	Secunde, R. R.	LERC	Demerdash, N. A.	NAG 3-818	4123
45	CLEMSON UNIV-CLEMSON	Parsons, C. L.	WFC	Ulbrich, C. W.	NAG 5-651	5013
45	CLEMSON UNIV-CLEMSON	Owens, F. C.	HQ-XE	Britt, C. L.	NGT 00-070-055	5022
45	CLEVELAND STATE UNIV	Flood, D. J.	LERC	Goradia, M. G.	NAG 3-241	4570
45	CLEVELAND STATE UNIV	Brinker, D. J.	LERC	Goradia, C.	NAG 3-249	4571
45	CLEVELAND STATE UNIV	Weinberg, I.	LERC	Goradia, C.	NAG 3-658	4575
45	CLEVELAND STATE UNIV	Brinker, D. J.	LERC	Goradia, M. G.	NAG 3-662	4576
45	CLEVELAND STATE UNIV	Fordyce, J. S.	LERC	Chang, G. C.	NCC 3-16	4586
45	CLEVELAND STATE UNIV	Baumbick, R. J.	LERC	Anthan, D. J.	NCC 3-58	4596
45	CLEVELAND STATE UNIV	Lesco, D. J.	LERC	Anthan, D. J.	NCC 3-66	4600
45	CLEVELAND STATE UNIV	Sater, B. L.	LERC	Smith, R. W.	NCC 3-86	4606
45	CLEVELAND STATE UNIV	Bahmbick, R. J.	LERC	Anthan, D.	NCC 3-98	4609
45	COLBY COLLEGE	Snyder, D. B.	LERC	Metz, R. N.	NAG 3-576	3213
45	CORNELL UNIVERSITY	Strong, J. P.	GSFC	Reeves, A. P.	NAG 5-403	4194
45	CORNELL UNIVERSITY	Florez, J. M.	GSFC	Borikoff, V.	NAG 5-1090	4199
45	CORNELL UNIVERSITY	Bhasin, K. B.	LERC	Eastman, L. F.	NCC 3-78	4235
45	CORNELL UNIVERSITY	Owens, F. C.	HQ-LE	Kintner, P. M.	NGT 00-070-008	4251
45	CORNELL UNIVERSITY	Owens, F. C.	HQ-LE	Kelley, M. C.	NGT 33-010-802	4253
45	DREXEL UNIVERSITY	Kunath, R. R.	LERC	Herczfeld, P. R.	NAG 3-736	4841
45	DREXEL UNIVERSITY	Kunath, R. R.	LERC	Herczfeld, P. R.	NCC 3-84	4847
45	DREXEL UNIVERSITY	Kunath, R. R.	LERC	Daryoush, A. S.	NCC 3-113	4848
45	EASTERN WASH UNIV	Bogue, R. K.	ARC	Hale, A. L.	NCC 2-437	5728
45	HOFSTRA UNIVERSITY	Staton, L. D.	LARC	Weissman, D. E.	NAG 1-311	4260
45	HOWARD UNIVERSITY	Burgess, A. S.	GSFC	Chowdhary, R.	NAG 5-1049	2563
45	HOWARD UNIVERSITY	Truskowski, W. F.	GSFC	Michal, G. M.	NCC 5-25	2570
45	JOHN CARROLL UNIV	Baumbick, R. J.	LERC	Fritsch, K.	NAG 3-571	4616
45	JOHNS HOPKINS UNIV	Abshire, J. B.	GSFC	Davidson, F. M.	NAG 5-356	3234
45	JOHNS HOPKINS UNIV	Pitts, F. L.	LARC	Masson, G. E.	NSG 1442	3270
45	MASS INST OF TECH	Shiue, J. C.	GSFC	King, J. A.	NAG 5-889	3536
45	MASS INST OF TECH	Owens, F. C.	HQ-XE	McIntosh, R. E.	NGT 00-050-191	3624
45	MASS INST OF TECH	Owens, F. C.	HQ-LE	Perez, L.	NGT 22-009-905	3634
45	MISSISSIPPI STATE U	Thomas, H. L.	MSFC	Ingels, F. M.	NAG 8-104	3860
45	MISSISSIPPI STATE U	Parker, G. A.	MSFC	Ingels, F. M.	NAS 8-36044	3864
45	NEW MEX INST MINING	Blakeslee, R.	MSFC	Brook, M.	NAG 8-66	4069
45	NEW MEX ST U-LAS CR	Blum, A.	GSFC	Gilcrease, A.	NAS 5-26662	4082
45	NO CAR A&T STATE U	Clark, I. O.	LARC	Abul-fadl, A.	NAG 1-403	4413
45	NO CAR A&T STATE U	Magee, C. J.	LARC	Stefanakos, E. K.	NSG 1390	4427
45	NO CAROLINA STATE U	Bailey, M. C.	LARC	Kauffman, J. F.	NAG 1-738	4433
45	NO CAROLINA STATE U	Matus, L. G.	LERC	Davis, R. F.	NAG 3-782	4440
45	NORTHEASTERN UNIV	Bracalente, E. M.	LARC	Raemer, H. R.	NAG 1-734	3645
45	OHIO STATE UNIV	Woo, A. C.	ARC	Burnside, W. D.	NAG 2-542	4629
45	OHIO STATE UNIV	Woo, A. C.	ARC	Chou, R. C.	NCA 2-322	4668
45	OHIO STATE UNIV	Beck, F. B.	LARC	Rudduck, C.	NAS 1-17450	4661

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
45	OHIO STATE UNIV	Gilreath, M. C.	LARC	Burnside, W. D.	NSG 1498	4676
45	OHIO STATE UNIV	Gilreath, M. C.	LARC	Burnside, W. D.	NSG 1613	4677
45	OHIO STATE UNIV	Heyward, A.	LERC	Reilly, C. H.	NAG 3-159	4631
45	OHIO STATE UNIV	Rice, E. J.	LERC	Pathak, P. H.	NAG 3-476	4633
45	OHIO STATE UNIV	Arth, C. H.	LERC	Gupta, I. J.	NAG 3-536	4634
45	OHIO STATE UNIV	Shaw, R. J.	LERC	Peters, L.	NAG 3-913	4645
45	OHIO STATE UNIV	Spence, R. L.	LERC	Compton, R. T.	NAS 3-24888	4662
45	OHIO STATE UNIV	Bhasin, K. B.	LERC	Valco, G. J.	NCC 3-105	4671
45	OHIO UNIVERSITY	Morrell, F. R.	LARC	McFarland, R. H.	NCC 1-111	4683
45	OHIO UNIVERSITY	Morrell, F. R.	LARC	McFarland, R. H.	NGR 36-009-017	4684
45	OLD DOMINION UNIV	Staton, L. D.	LARC	Hibey, J. L.	NAG 1-626	5544
45	OLD DOMINION UNIV	Hayes, P. J.	LARC	Stoughton, J. W.	NAG 1-683	5549
45	OLD DOMINION UNIV	Holmes, H. K.	LARC	McCree, G. J.	NAG 1-735	5553
45	OLD DOMINION UNIV	Gray, D. L.	LARC	Stoughton, J. W.	NCC 1-120	5579
45	OLD DOMINION UNIV	Owens, F. C.	HQ-LE	Stoughton, J. W.	NGT 00-050-080	5582
45	OLD DOMINION UNIV	Owens, F. C.	HQ-LE	Schoenbach, K.	NGT 00-050-115	5583
45	OLD DOMINION UNIV	Owens, F. C.	HQ-LE	Albin, S.	NGT 00-050-118	5584
45	OREGON GRADUATE CTR	Abshire, J. B.	GSFC	Elliott, R. A.	NAG 5-734	4792
45	PRAIRIE VIEW A&M U	Arndt, G. D.	JSC	Tolliver, C. L.	NAG 9-318	5108
45	PRINCETON UNIVERSITY	Rhodes, P. H.	MSFC	Saville, D. A.	NAG 8-597	4033
45	PURDUE UNIVERSITY	Truong, L. V.	LERC	Wasynczuk, O.	NAG 3-848	3011
45	PURDUE UNIVERSITY	Owens, F. C.	HQ-LE	Mitchell, O. R.	NGT 00-050-070	3034
45	RENSSELAER POLY-NY	Joshi, S. M.	LARC	Kaufman, H.	NAG 1-515	4287
45	RENSSELAER POLY-NY	Weinberg, I.	LERC	Ghandhi, S. K.	NAG 3-604	4292
45	RICE UNIVERSITY	Owens, F. C.	HQ-XE	De Figueiredo, R.	NGT 00-050-379	5134
45	RICE UNIVERSITY	Owens, F. C.	HQ-LB	De Figueiredo H, R. J.	NGT 44-006-806	5135
45	RICE UNIVERSITY	Owens, F. C.	HQ-LE	De Figueiredo, R.	NGT 00-050-071	5132
45	RICE UNIVERSITY	Owens, F. C.	HQ-LE	Johnson, D. H.	NGT 44-006-807	5136
45	GEORGIA INST OF TECH	Tang, S.	JSC	Cooke, B.	NAS 9-17445	2737
45	GEORGIA INST OF TECH	Clark, L. G.	LARC	Blue, M. D.	NAS 1-14654	2728
45	GEORGIA INST OF TECH	O'neal, R. L.	LARC	Gaylord, T. K.	NAS 1-15370	2729
45	GEORGIA INST OF TECH	Owens, F. C.	HQ-XE	Uyemura, J. P.	NGT 11-005-800	2747
45	STANFORD UNIVERSITY	Grant, T. L.	ARC	Tobagi, F. A.	NAG 2-292	1632
45	STANFORD UNIVERSITY	Lum, H.	ARC	Flynn, M. J.	NCA 2-109	1684
45	STANFORD UNIVERSITY	Lum, H.	ARC	Goodman, J. W.	NCA 2-197	1695
45	STANFORD UNIVERSITY	Lum, H.	ARC	Goodman, J. W.	NCA 2-331	1718
45	STANFORD UNIVERSITY	Jones, H. W.	ARC	Peterson, A. M.	NCC 2-445	1749
45	STANFORD UNIVERSITY	Magee, C. J.	LARC	Byer, R. L.	NAG 1-182	1621
45	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Banks, P. M.	NGT 00-050-151	1773
45	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Eshleman, V. R.	NGT 00-070-056	1783
45	STANFORD UNIVERSITY	Owens, F. C.	HQ-LE	Banks, P. M.	NGT 00-050-016	1771
45	TENNESSEE TECH U	Kutyna, F. A.	JSC	Carnal, C.	NGT 00-050-083	5048
45	TEXAS A&M UNIVERSITY	Hackler, I. M.	JSC	Russell, B. D.	NAG 9-143	5171
45	TEXAS A&M UNIVERSITY	Williams, R. J.	JSC	Pandey, R. K.	NAG 9-150	5173
45	TEXAS A&M UNIVERSITY	Darcy, E.	JSC	White, R. E.	NAG 9-177	5176
45	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Russell, D.	NGT 00-070-082	5213
45	TUSKEGEE INSTITUTE	Randall, J. L.	MSFC	Doreswamy, C. V.	NAG 8-40	1052
45	UNIV OF AKRON	Lee, R. Q.	LERC	Lee, K. F.	NCC 3-102	4709
45	UNIV ALA-HUNTSVILLE	Fields, S. H.	MSFC	Torr, D. G.	NAG 8-86	1097
45	UNIV ALA-HUNTSVILLE	Edge, T. M.	MSFC	Ho, F. D.	NAG 8-96	1101
45	UNIV ALA-HUNTSVILLE	Edge, T.	MSFC	Ho, F. D.	NAG 8-108	1105
45	UNIV ARKANSAS-FAYETV	Weizer, V. G.	LERC	Hermann, A. M.	NAG 3-802	1445
45	UNIV ARKANSAS-FAYETV	Weizer, V. G.	LERC	Hermann, A. M.	NAG 3-920	1446
45	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Mozer, F. S.	NAG 5-375	1809
45	UNIV CALIF-BERKELEY	Bailey, S. G.	LERC	Weber, E. R.	NAG 3-857	1805
45	UNIV CALIF-L ANGELES	Joshi, S. M.	LARC	Balakrishnan, A. V.	NAG 1-464	1963
45	UNIV CALIF-L ANGELES	Owens, F. C.	HQ-XE	Levan, N.	NGT 00-070-045	2060
45	UNIV OF CINCINNATI	Sundberg, G. R.	LERC	Henderson, H. T.	NAG 3-297	4719
45	UNIV OF CINCINNATI	Bailey, S.	LERC	Mantei, T. D.	NAG 3-515	4723
45	UNIV OF CINCINNATI	Whyte, W. A.	LERC	Ramamoorthy, P. A.	NAG 3-582	4724

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
45	UNIV OF CINCINNATI	Krawczonek, W. M.	LERC	Kapoor, V. J.	NAG 3-807	4726
45	UNIV OF CINCINNATI	Williams, W. D.	LERC	Kapoor, V. J.	NCC 3-75	4734
45	UNIV OF CINCINNATI	Bhasin, K.	LERC	Boyd, J. T.	NCC 3-92	4735
45	UNIV OF CINCINNATI	Sundberg, G. R.	LERC	Henderson, H. T.	NSG 3022	4740
45	UNIV OF CINCINNATI	Owens, F. C.	HQ-LE	Kapoor, V. J.	NGT 00-050-086	4736
45	UNIV HOUSTON-HOUSTON	Price, C. R.	JSC	McInnis, B. C.	NAG 9-211	5238
45	UNIV HOUSTON-HOUSTON	Krishen, K.	JSC	Wolfe, J. C.	NAG 9-277	5247
45	UNIV OF IDAHO	Miller, W.	GSFC	Maki, G. K.	NAS 5-26534	2817
45	UNIV ILLINOIS-CHICGO	Woo, A. C.	ARC	Uslenghi, P. L.	NAG 2-544	2913
45	UNIV ILLINOIS-URBANA	Abshire, J. B.	GSFC	Gardner, C. S.	NSG 5049	2970
45	UNIV ILLINOIS-URBANA	Murray, N. D.	LARC	Reed, D. A.	NAG 1-595	2922
45	UNIV ILLINOIS-URBANA	Lee, R. Q.	LERC	Lo, Y. T.	NAG 3-418	2930
45	UNIV ILLINOIS-URBANA	Acosta, R. J.	LERC	Lee, S. W.	NAG 3-419	2931
45	UNIV ILLINOIS-URBANA	Rice, E. J.	LERC	Lee, S. W.	NAG 3-475	2933
45	UNIV ILLINOIS-URBANA	Godlewski, M. P.	LERC	Leburton, J. P.	NAG 3-507	2934
45	UNIV ILLINOIS-URBANA	Alterovitz, S. A.	LERC	Morkoc, H.	NAG 3-613	2936
45	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Lee, S. W.	NGT 00-070-038	2966
45	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Lo, Y. T.	NGT 00-070-042	2968
45	UNIV OF IOWA	Owens, F. C.	HQ-XE	Robinson, J.	NGT 00-050-250	3117
45	UNIV OF KANSAS	Owens, F. C.	HQ-XE	Moore, R. K.	NGT 00-050-286	3156
45	UNIV OF KANSAS	Owens, F. C.	HQ-XE	Moore, R. K.	NGT 00-050-317	3157
45	UNIV MARYLAND-COL PK	Dorband, J. E.	GSFC	Ja Ja, J.	NAG 5-776	3324
45	UNIV MARYLAND-COL PK	Burt, I. J.	GSFC	Clark, J. E.	NAG 5-895	3331
45	UNIV MARYLAND-COL PK	Glenar, D. A.	GSFC	Zaki, K. A.	NAG 5-1002	3342
45	UNIV MARYLAND-COL PK	Fales, C. L.	LARC	Farvardin, N.	NAG 1-582	3289
45	UNIV MD-EASTRN SHORE	Menchan, D.	GSFC	Muller, R. E.	NCA 5-99	3417
45	UNIV OF MASS-AMHERST	Le Vine, D. M.	GSFC	Swift, C. T.	NAS 5-29385	3667
45	UNIV OF MASS-AMHERST	Owens, F. C.	HQ-XE	McIntosh, R. E.	NGT 00-070-037	3673
45	UNIV OF MASS-AMHERST	Owens, F. C.	HQ-LE	Swift, C. T.	NGT 00-050-038	3670
45	UNIV MICH-ANN ARBOR	Woo, A. C.	ARC	Volakis, J. L.	NAG 2-541	3724
45	UNIV MICH-ANN ARBOR	Way, S. H.	GSFC	Carignan, G. R.	NAG 5-803	3739
45	UNIV MICH-ANN ARBOR	Clark, I. O.	LARC	Bhattacharya, P. K.	NAG 1-555	3713
45	UNIV MICH-ANN ARBOR	Dickman, J. E.	LERC	Haddad, G. I.	NAG 3-618	3726
45	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-XE	Ulaby, F. T.	NGT 00-050-330	3798
45	U MINN-MNPLS-ST PAUL	Lum, H.	ARC	Slagle, J. R.	NCC 2-497	3841
45	U MINN-MNPLS-ST PAUL	Kaiser, M. L.	GSFC	Kellogg, P. J.	NAS 5-28574	3835
45	UNIV NEBRASKA-LINCLN	Tomko, D.	ARC	Doslak, M. J.	NCA 2-234	3956
45	UNIV NEBRASKA-LINCLN	Jaworske, D. A.	LERC	Woollam, J. A.	NAG 3-95	3938
45	UNIV NEBRASKA-LINCLN	Whyte, W. A.	LERC	Sayood, K.	NAG 3-806	3940
45	UNIV NEW HAMP-DURHAM	Owens, F. C.	HQ-XE	Messner, R. A.	NGT 00-050-216	4007
45	UNIV N CAR-CHARLOTTE	Armstrong, E. S.	LARC	Kakad, Y. P.	NAG 1-535	4469
45	U PUERTO RICO-MAYAGZ	Owens, F. C.	HQ-XE	Ortiz, J.	NGT 00-050-255	5924
45	UNIV OF REDLANDS	Hendricks, H. D.	LARC	Wang, S.	NAG 1-580	2233
45	UNIV OF ROCHESTER	Bhasin, K. B.	LERC	Dykaar, D.	NCC 3-107	4393
45	UNIV SO CAROLINA-COL	Wagner, H. A.	JSC	Morehouse, J. H.	NAG 9-231	5027
45	UNIV OF SOUTHERN CAL	Brinker, D. J.	LERC	Dapkus, P. D.	NAG 3-529	2256
45	UNIV TENNESSEE-KNOXV	Lollar, L. F.	MSFC	Lee, S.	NAG 8-721	5063
45	UNIV TEXAS-AUSTIN	Scallion, W. I.	LARC	Gully, J. H.	NAG 1-721	5280
45	UNIV OF TOLEDO	Whyte, W. A.	LERC	Kwatra, S. C.	NAG 3-42	4748
45	UNIV OF TOLEDO	Schwarze, G. E.	LERC	Stuart, T. A.	NAG 3-708	4753
45	UNIV OF TOLEDO	Budinger, J. M.	LERC	Kwatra, S. C.	NAG 3-799	4757
45	UNIV OF TOLEDO	Budinger, J. M.	LERC	Kwatra, S. C.	NAG 3-865	4758
45	UNIV OF UTAH	Heighway, J.	LERC	Grow, R. W.	NAG 3-327	5441
45	UNIV OF VIRGINIA	Bennett, C. L.	GSFC	Mattauch, R. J.	NAG 5-712	5616
45	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Inigo, R. M.	NGT 00-050-125	5640
45	UNIV OF WASHINGTON	Hirata, J. H.	ARC	Alexandro, F. J.	NCA 2-278	5793
45	UNIV OF WASHINGTON	Hueschen, R. M.	LARC	Loily, U.	NAG 1-913	5734
45	UNIV WISC-MADISON	Sundberg, G. R.	LERC	Lipo, T. A.	NAG 3-786	5840
45	UNIV WISC-MADISON	Myers, I. T.	LERC	Divan, D. M.	NAG 3-804	5841
45	UNIV WISC-MADISON	Hansen, I. G.	LERC	Lipo, T. A.	NAG 3-940	5842

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
45	VIRGINIA POLY INST	Jagielski, J. M.	GSFC	Lee, F. C.	NAG 5-518	5701
45	VIRGINIA POLY INST	Parsons, C. L.	GSFC	Brown, G. S.	NAG 5-636	5702
45	VIRGINIA POLY INST	Parsons, C. L.	GSFC	Brown, G. S.	NAG 5-648	5703
45	VIRGINIA POLY INST	Staton, L. D.	LARC	Brown, G. S.	NAG 1-754	5678
45	VIRGINIA POLY INST	Rogowski, R. S.	LARC	Claus, R. O.	NAG 1-780	5681
45	VIRGINIA POLY INST	Bailey, M. C.	LARC	Stutzman, W. L.	NAG 1-859	5686
45	VIRGINIA POLY INST	Rogowski, R. S.	LARC	Claus, R. O.	NAG 1-895	5689
45	VIRGINIA POLY INST	Baez, A. N.	LERC	Lee, F. C.	NAG 3-551	5694
45	VIRGINIA POLY INST	Owens, F. C.	HQ-XE	Lindner, D.	NGT 00-050-004	5715
45	WASHINGTON ST UNIV	Owens, F. C.	HQ-LE	Hower, G.	NGT 00-050-075	5819
45	WAYNE STATE UNIV	Brinker, D. J.	LERC	Woodyard, J. R.	NAG 3-833	3809
45	YALE UNIVERSITY	Rocha, R.	JSC	Narendra, K. S.	NAS 9-17395	2472
46	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Hurford, G. J.	NAG 8-23	1001
46	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Venkateswarly, P.	NAG 8-29	1004
46	ARIZONA STATE UNIV	Fleming, D. P.	LERC	Nelson, H. D.	NAG 3-580	1215
46	ARIZONA STATE UNIV	Simon, F. F.	LERC	Metzger, D. E.	NAG 3-623	1216
46	AUBURN UNIV-AUBURN	Cummings, R. O.	MSFC	Foster, W. A.	NAG 8-614	1021
46	AUBURN UNIV-AUBURN	Guest, S. H.	MSFC	Crocker, M. J.	NAS 8-36146	1031
46	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-XE	Crocker, M. J.	NGT 00-050-361	1043
46	BROWN UNIVERSITY	Housner, J. M.	LARC	Ortiz, M.	NAG 1-634	4970
46	CALIF INST OF TECH	Stinson, H. P.	MSFC	Acosta, A. J.	NAS 8-33108	1504
46	CAL STATE U-LG BEACH	Matheny, N. W.	ARC	Yeh, H. Y.	NAG 2-510	1550
46	CAL STATE U-LG BEACH	Townsend, D. P.	LERC	Akin, L.	NAG 3-20	1551
46	CARNEGIE-MELLON UNIV	Hendricks, R. C.	LERC	Hughes, W. F.	NAG 3-166	4825
46	CARNEGIE-MELLON UNIV	Chubb, D. L.	LERC	Lawless, J. L.	NAG 3-614	4827
46	CARNEGIE-MELLON UNIV	Lawrence, C.	LERC	Desilva, C. W.	NAG 3-811	4829
46	CASE WESTERN RESERVE	O'Brien, J. E.	LERC	Reshotko, E.	NAG 3-230	4484
46	CASE WESTERN RESERVE	Acosta, W. A.	LERC	Dybbs, A.	NAG 3-467	4489
46	CASE WESTERN RESERVE	Calomino, A. M.	LERC	Chudnovsky, P. A.	NAG 3-585	4495
46	CASE WESTERN RESERVE	Radil, K. C.	LERC	Mullen, R. L.	NAG 3-653	4498
46	CASE WESTERN RESERVE	Liebert, C. H.	LERC	Dybbs, A.	NAG 3-686	4499
46	CASE WESTERN RESERVE	Shannon, J. L., Jr.	LERC	Mendelson, A.	NAG 3-703	4505
46	CASE WESTERN RESERVE	Lawrence, C.	LERC	Quinn, R. D.	NAG 3-761	4510
46	CASE WESTERN RESERVE	Lawrence, C.	LERC	Quinn, R. D.	NAG 3-797	4518
46	CASE WESTERN RESERVE	Simoneau, R. J.	LERC	Reshotko, E.	NAG 3-932	4532
46	CASE WESTERN RESERVE	Brewe, D. E.	LERC	Prahl, J. M.	NCC 3-30	4539
46	CASE WESTERN RESERVE	Marek, C. J.	LERC	Tien, J. S.	NCC 3-87	4552
46	CASE WESTERN RESERVE	Owens, F. C.	HQ-LB	Adams, M.	NGT 36-027-803	4566
46	CASE WESTERN RESERVE	Owens, F. C.	HQ-LE	T'ien, J. S.	NGT 00-050-088	4560
46	CATHOLIC UNIVERSITY	Osborne, E. P.	GSFC	Baz, A. M.	NAG 5-520	2501
46	CATHOLIC UNIVERSITY	Fedor, J. V.	GSFC	Baz, A. M.	NAG 5-1037	2510
46	CATHOLIC UNIVERSITY	Ahluwalia, H. S.	HQ-ES	Luhang, Y. C.	NAGW 1323	2513
46	CENTRAL ST UNIV-OHIO	Margolis, M.	HQ-U	Grisson, W. A.	NAGW 1336	4568
46	CITY COLLEGE OF N Y	Owens, F. C.	HQ-XE	Raj, R.	NGT 00-070-046	4117
46	CLEVELAND STATE UNIV	Manderscheid, J. M.	LERC	Pintz, A.	NAG 3-879	4582
46	CLEVELAND STATE UNIV	Presler, A. F.	LERC	Alkasab, K. A.	NCC 3-17	4587
46	CLEVELAND STATE UNIV	Trudell, J. J.	LERC	Evans, A. L.	NCC 3-50	4595
46	CLEVELAND STATE UNIV	Vernon, R. W.	LERC	Gorla, R.	NCC 3-70	4602
46	CLEVELAND STATE UNIV	Marek, C. J.	LERC	Ghorashi, B.	NCC 3-100	4610
46	COLORADO STATE UNIV	McCoy, J. E.	JSC	Wilbur, P. J.	NAG 9-120	2287
46	COLORADO STATE UNIV	Rawlin, V. K.	LERC	Wilbur, P. J.	NGR 06-002-112	2297
46	COLORADO STATE UNIV	Campbell, W.	MSFC	Sandborn, V. A.	NAS 8-36354	2292
46	COLORADO STATE UNIV	Owens, F. C.	HQ-XE	Wilbur, P. J.	NGT 00-050-370	2299
46	COLUMBIA UNIVERSITY	Owens, F. C.	HQ-XE	Longman, R.	NGT 00-050-257	4182
46	DARTMOUTH COLLEGE	Owens, F. C.	HQ-XE	Kennedy, F.	NGT 00-050-376	3984
46	DUKE UNIVERSITY	Shepherd, K. P.	LARC	Dowell, E. A.	NAG 1-709	4398
46	DUKE UNIVERSITY	Shepherd, K. P.	LARC	Bliss, D. B.	NAG 1-722	4399
46	DUKE UNIVERSITY	Owens, F. C.	HQ-XE	Bliss, D.	NGT 00-050-169	4407
46	DUKE UNIVERSITY	Owens, F. C.	HQ-XE	Dowell, E. H.	NGT 00-050-342	4408
46	EASTERN KENTUCKY U	Fishman, G. J.	MSFC	Laird, C. E.	NAS 8-36649	3163

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
46	FLORIDA A&M UNIV	Alterescu, S.	GSFC	Fresh, F. A.	NAS 5-25165	2582
46	FLORIDA ATLANTIC U	Metcalfe, V. L.	LARC	Cuschieri, J. M.	NAG 1-685	2588
46	FLORIDA INST OF TECH	Gill, U. S.	MSFC	Frankel, J. I.	NAG 8-109	2592
46	GEORGE WASHINGTON U	Swanson, T. D.	GSFC	Kiper, A. M.	NAG 5-834	2532
46	GEORGE WASHINGTON U	Robinson, M. P.	LARC	Liebowitz, H.	NAG 1-852	2527
46	GEORGE WASHINGTON U	Salzman, J. A.	LERC	Dressler, R. F.	NAG 3-883	2530
46	HOWARD UNIVERSITY	Housner, J. M.	LARC	Broome, T. H., Jr.	NAG 1-383	2553
46	HOWARD UNIVERSITY	Owens, F. C.	HQ-LE	Broome, T. H.	NGT 00-050-109	2571
46	IOWA STATE UNIV	Steger, J. L.	ARC	Pletcher, R. H.	NCA 2-17	3071
46	IOWA STATE UNIV	Van Dalsem, W. R.	ARC	Pletcher, R. H.	NCA 2-174	3072
46	IOWA STATE UNIV	Owens, F. C.	HQ-XE	Okiishi, T. H.	NGT 00-050-137	3079
46	IOWA STATE UNIV	Owens, F. C.	HQ-LB	Pletcher, R. H.	NGT 16-002-802	3081
46	JACKSON STATE UNIV	Rhodes, M. D.	LARC	Brewer, W. V.	NAG 1-860	3855
46	JOHNS HOPKINS UNIV	Newman, J. C.	LARC	Douglas, A. S.	NAG 1-484	3227
46	JOHNS HOPKINS UNIV	Newman, J. C., Jr.	LARC	Sharpe, W. N., Jr.	NAG 1-526	3228
46	LAMAR UNIVERSITY	Chandler, J. A.	JSC	Corder, P. R.	NAG 9-300	5105
46	LEHIGH UNIVERSITY	Bigelow, C. A.	LARC	Erdogan, F.	NAG 1-713	4851
46	LA ST U&A&M COL-BRGE	Holst, T. L.	ARC	Acharya, S.	NCA 2-326	3191
46	LOUISIANA TECH UNIV	Hoffman, W. C.	JSC	Callens, E. E.	NAG 9-176	3193
46	MANHATTAN COLLEGE	Armstrong, E. S.	LERC	Naraghi, M. H.	NAG 3-759	4266
46	MASS INST OF TECH	Soloway, D.	LARC	Dubowsky, S.	NAG 1-489	3485
46	MASS INST OF TECH	Harrison, F. W.	LARC	Dubowsky, S.	NAG 1-801	3490
46	MASS INST OF TECH	Defelice, D. M.	LERC	Sonin, A. A.	NAG 3-731	3510
46	MASS INST OF TECH	Wilmer, G.	MSFC	Sanchez, M. M.	NAS 8-35018	3599
46	MASS INST OF TECH	Owens, F. C.	HQ-XE	Sheridan, T.	NGT 00-050-145	3623
46	MASS INST OF TECH	Owens, F. C.	HQ-XE	Williams, J. H.	NGT 00-070-066	3630
46	MASS INST OF TECH	Owens, F. C.	HQ-XE	Williams, J. H.	NGT 00-070-067	3631
46	MASS INST OF TECH	Owens, F. C.	HQ-LE	Dubowsky, S.	NGT 00-070-012	3628
46	MICHIGAN STATE UNIV	Nguyen, H. L.	LERC	Shock, H. J.	NAG 3-853	3696
46	MICHIGAN TECH UNIV	McKissick, B. T.	LARC	Trevino, G.	NAG 1-717	3703
46	MICHIGAN TECH UNIV	McQuillen, J.	LERC	Suryanarayana, N. V.	NAG 3-711	3707
46	MICHIGAN TECH UNIV	Schock, H. J.	LERC	Arici, O.	NAG 3-812	3708
46	NEW MEX ST U-LAS CR	Owens, F. C.	HQ-XE	Hills, R. G.	NGT 00-070-070	4093
46	NO CAR A&T STATE U	Nowak, R. J.	LARC	Goswami, D. Y.	NAG 1-408	4417
46	NO CAR A&T STATE U	Witcofski, R. D.	LARC	Sharpe, L.	NAG 1-892	4423
46	NO CAROLINA STATE U	Fleming, D. P.	LERC	David, J. W.	NAG 3-611	4438
46	NORTHWESTERN UNIV	Housner, J. M.	LARC	Belytschko, T. B.	NAG 1-650	2824
46	OHIO STATE UNIV	Tung, C.	ARC	Conlisk, A. T.	NCA 2-103	4664
46	OHIO STATE UNIV	Van Dalsem, W. R.	ARC	Nakamura, S.	NCA 2-298	4667
46	OHIO STATE UNIV	Zaman, K. Q.	LERC	Samimy, M.	NAG 3-764	4638
46	OHIO STATE UNIV	Zakrajsek, J. J.	LERC	Houser, D. R.	NAG 3-773	4639
46	OHIO STATE UNIV	Kielb, R. E.	LERC	Leissa, A. W.	NAG 3-880	4644
46	OHIO STATE UNIV	Owens, F. C.	HQ-XE	Herbert, T.	NGT 00-050-259	4674
46	OHIO UNIVERSITY	Kiraly, L. J.	LERC	Akl, F. A.	NAG 3-762	4681
46	OLD DOMINION UNIV	Walz, J. F.	LARC	Mei, C.	NAG 1-301	5532
46	OLD DOMINION UNIV	Storaasli, O. O.	LARC	Razzag, Z.	NAG 1-438	5536
46	OLD DOMINION UNIV	Newman, J. C., Jr.	LARC	Cupschalk, S.	NAG 1-529	5538
46	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Britcher, C. P.	NGT 00-050-260	5586
46	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Mei, C.	NGT 00-070-020	5588
46	OREGON STATE UNIV	Brinton, H. C.	HQ-EL	Barnes, J. R.	NAGW 727	4797
46	PENN STATE U-UNIV PK	Horstman, C. C.	ARC	Settles, G. S.	NCA 2-49	4912
46	PENN STATE U-UNIV PK	Horstman, C. C.	ARC	Settles, G. S.	NCA 2-192	4915
46	PENN STATE U-UNIV PK	Horstman, C. C.	ARC	Settles, G. S.	NCA 2-235	4916
46	PENN STATE U-UNIV PK	Delaat, J. C.	LERC	Ray, A.	NAG 3-823	4877
46	PENN STATE U-UNIV PK	Bulzan, D. L.	LERC	Santavicca, D. A.	NCC 3-51	4922
46	PENN STATE U-UNIV PK	Owens, F. C.	HQ-XE	Koopmann, G. H.	NGT 00-050-265	4926
46	PRINCETON UNIVERSITY	Owens, F. C.	HQ-XE	Dryer, F. L.	NGT 00-050-373	4054
46	PURDUE UNIVERSITY	Miura, H.	ARC	Rao, S. S.	NCA 2-223	3026
46	PURDUE UNIVERSITY	Bigelow, C. A.	LARC	Sun, C. T.	NAG 1-825	2997
46	PURDUE UNIVERSITY	Weidner, J. P.	LARC	Thompson, H. D.	NAG 1-854	2998

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
46	PURDUE UNIVERSITY	Lyons, V. J.	LERC	Laurendeau, N. M.	NAG 3-351	3001
46	PURDUE UNIVERSITY	Rollbuhler, R. J.	LERC	Lefebvre, A. F.	NAG 3-552	3006
46	PURDUE UNIVERSITY	Owens, F. C.	HQ-XE	Viskanta, R.	NGT 00-050-207	3038
46	PURDUE UNIVERSITY	Owens, F. C.	HQ-LE	Incropera, F. P.	NGT 00-050-011	3032
46	ROSE-HULMAN INST TEC	Brown, G. V.	LERC	North, C. M.	NAG 3-868	3041
46	GEORGIA INST OF TECH	Camarda, C. J.	LARC	Colwell, G. T.	NAG 1-392	2691
46	GEORGIA INST OF TECH	Soloway, D.	LARC	Book, W. J.	NAG 1-623	2696
46	GEORGIA INST OF TECH	Warshawsky, I.	LERC	Livesay, B. R.	NAG 3-750	2714
46	GEORGIA INST OF TECH	Owens, F. C.	HQ-XE	Lipkin, H.	NGT 00-050-369	2742
46	STANFORD UNIVERSITY	Driver, D. M.	ARC	Johnston, J. P.	NCA 2-11	1675
46	STANFORD UNIVERSITY	Driver, D. M.	ARC	Johnston, J. P.	NCA 2-204	1697
46	STANFORD UNIVERSITY	Johnson, D. A.	ARC	Eaton, J. K.	NCA 2-265	1706
46	STANFORD UNIVERSITY	Kim, J.	ARC	Ferziger, J. H.	NCA 2-285	1710
46	STANFORD UNIVERSITY	Lemke, L. G.	ARC	Barkan, P.	NCA 2-302	1713
46	STANFORD UNIVERSITY	Black, D. C.	ARC	Barkan, P.	NCA 2-308	1714
46	STANFORD UNIVERSITY	Kim, J.	ARC	Van Dyke, M.	NCA 2-324	1717
46	STANFORD UNIVERSITY	Johnson, D. A.	ARC	Eaton, J. K.	NCC 2-238	1734
46	STANFORD UNIVERSITY	Rogallo, R. F.	ARC	Moin, P.	NCC 2-460	1750
46	STANFORD UNIVERSITY	Stokes, L.	JSC	Leifer, L. J.	NAG 9-262	1651
46	STANFORD UNIVERSITY	Drummond, J. P.	LARC	Ferziger, J. H.	NAG 1-532	1623
46	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Moffat, R. J.	NAG 3-522	1638
46	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Leifer, L.	NGT 00-050-220	1776
46	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Leifer, L.	NGT 00-070-072	1784
46	STATE UNIV NY-ALBANY	Owens, F. C.	HQ-LE	Rae, W. J.	NGT 33-183-805	4331
46	STATE UNIV NY-BUFFAL	Owens, F. C.	HQ-LB	Inman, D. J.	NGT 33-183-801	4351
46	STATE UNIV NY-BUFFAL	Owens, F. C.	HQ-LB	Inman, D. J.	NGT 33-183-802	4352
46	STATE UNIV NY-BUFFAL	Owens, F. C.	HQ-LE	Liu, C. S.	NGT 00-050-085	4347
46	SYRACUSE UNIVERSITY	O'Brien, J. E.	LERC	Legraff, J. E.	NAG 3-621	4384
46	SYRACUSE UNIVERSITY	Telesman, J.	LERC	Liu, H. W.	NAG 3-837	4385
46	TEXAS A&M UNIVERSITY	Lin, C. H.	JSC	Peterson, G. P.	NAG 9-276	5183
46	TEXAS A&M UNIVERSITY	Hendricks, R. C.	LERC	Childs, D. W.	NAG 3-181	5156
46	TEXAS A&M UNIVERSITY	Kascak, A. F.	LERC	Palazzolo, A. B.	NAG 3-763	5160
46	TEXAS A&M UNIVERSITY	Kascak, A. F.	LERC	Palazzolo, A. B.	NAG 3-891	5162
46	TEXAS A&M UNIVERSITY	Campbell, H. M.	MSFC	Childs, D.	NAS 8-35824	5194
46	TEXAS A&M UNIVERSITY	Garcia, F.	MSFC	Rhode, P. L.	NAS 8-36161	5195
46	TEXAS A&M UNIVERSITY	Fox, T. A.	MSFC	Noah, S. T.	NAS 8-36293	5196
46	TULANE UNIVERSITY	Calomino, A. M.	LERC	Rubinstein, A. A.	NAG 3-815	3202
46	TUSKEGEE INSTITUTE	Owens, F. C.	HQ-LB	Jeelani, S.	NGT 01-005-751	1062
46	TUSKEGEE INSTITUTE	Owens, F. C.	HQ-LE	Jeelani, S.	NGT 00-050-130	1061
46	UNIV OF AKRON	Chamis, C. C.	LERC	Padovan, J.	NAG 3-54	4690
46	UNIV OF AKRON	Lewicki, D. G.	LERC	Savage, M.	NAG 3-55	4691
46	UNIV OF AKRON	Zakrajsek, J. J.	LERC	Choy, F. K.	NAG 3-900	4703
46	UNIV OF AKRON	Russell, L. M.	LERC	Braun, M. L.	NCC 3-93	4708
46	UNIV ALA-HUNTSVILLE	Tucker, P. K.	MSFC	Chung, T. J.	NAG 8-629	1113
46	UNIV ALA-HUNTSVILLE	Tygielski, P. J.	MSFC	Guinn, G. R.	NCC 8-4	1169
46	UNIV ALA-HUNTSVILLE	Owens, F. C.	HQ-XE	Goldberg, D. E.	NGT 00-050-224	1176
46	UNIV OF ARIZONA	Owens, F.	HQ-LE	Fasel, H.	NGT 03-002-809	1428
46	UNIV CALIF-BERKELEY	Mehta, U. B.	ARC	Holt, M.	NAG 2-471	1800
46	UNIV CALIF-BERKELEY	Chapman, G. T.	ARC	Holt, M.	NCA 2-37	1852
46	UNIV CALIF-BERKELEY	Haslim, L. A.	ARC	Dharan, C. K.	NCA 2-163	1860
46	UNIV CALIF-BERKELEY	Holst, T. L.	ARC	Holt, M.	NCA 2-209	1861
46	UNIV CALIF-BERKELEY	Chapman, G. T.	ARC	Holt, M.	NCA 2-249	1865
46	UNIV CALIF-BERKELEY	Chaussee, D.	ARC	Holt, M.	NCA 2-275	1867
46	UNIV CALIF-BERKELEY	Sokol, P. M.	LERC	Humphrey, J. A.	NAG 3-735	1804
46	UNIV CALIF-BERKELEY	Stocker, D. P.	LERC	Pello, A. C.	NAG 3-861	1806
46	UNIV CALIF-BERKELEY	Fox, K.	HQ-EL	Marcus, P. S.	NAGW 1349	1836
46	UNIV CALIF-DAVIS	Robinson, S. K.	ARC	White, B. R.	NCA 2-79	1931
46	UNIV CALIF-DAVIS	Kwak, D.	ARC	Hafez, M. M.	NCA 2-210	1934
46	UNIV CALIF-DAVIS	Vanoverbeke, T.	LERC	Kollman, W.	NAG 3-667	1919
46	UNIV CALIF-IRVINE	Davy, W. C.	ARC	Edwards, D. K.	NCA 2-119	1958

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
46	UNIV CALIF-IRVINE	Davy, W. C.	ARC	Edwards, D. K.	NCA 2-353	1959
46	UNIV CALIF-IRVINE	Owens, F. C.	HQ-XE	Sirignano, W. A.	NGT 00-050-372	1960
46	UNIV CALIF-L ANGELES	Bogue, R. K.	ARC	Temes, G. C.	NAG 2-360	1973
46	UNIV CALIF-L ANGELES	Baker, K. W.	LERC	Catton, I.	NAG 3-899	1987
46	UNIV CALIF-SAN DIEGO	Ross, H. D.	LERC	Berlad, A. L.	NAG 3-925	2081
46	UNIV CALIF-S BARBARA	Coe, H. H.	LERC	Vanderplaats, G.	NAG 3-683	2181
46	UNIV CALIF-S BARBARA	Freed, A. D.	LERC	Leckie, F. A.	NAG 3-894	2182
46	CAMBRIDGE UNIVERSITY	Newman, J. C.	LARC	Fleck, N. A.	NAGW 1014	5940
46	UNIV OF CENTRAL FLA	Owens, F. C.	HQ-XE	Bishop, P.	NGT 00-050-390	2621
46	UNIV OF CINCINNATI	Ross, H. D.	LERC	Disimile, P. J.	NAG 3-938	4728
46	UNIV OF CINCINNATI	Oswald, F. B.	LERC	Huston, R. L.	NSG 3188	4741
46	UNIV OF CINCINNATI	Owens, F. C.	HQ-XE	Huston, R. L.	NGT 00-070-049	4739
46	UNIV COLORADO-BOLDR	Housner, J. M.	LARC	Park, K. C.	NAG 1-756	2304
46	UNIV COLORADO-BOLDR	Owens, F. C.	HQ-XE	Park, K. C.	NGT 00-050-254	2423
46	UNIV OF CONNECTICUT	Fralick, G. C.	LERC	Jordon, E. H.	NAG 3-854	2457
46	UNIV OF FLORIDA	Schock, H. J.	LERC	Shih, T. I.	NAG 3-363	2632
46	UNIV OF FLORIDA	Nguyen, H. L.	LERC	P-shih, T. I.	NAG 3-911	2635
46	UNIV HOUSTON-HOUSTON	Ferris, E. P.	JSC	Bannerot, R. B.	NAG 9-197	5234
46	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-LB	Hussain, A. K.	NGT 44-005-806	5268
46	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-LE	Allen, R. H.	NGT 00-050-069	5262
46	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-LE	Hussain, A. K.	NGT 00-050-097	5263
46	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-LE	Koopmann, G. H.	NGT 00-050-121	5264
46	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-LE	Hussain, A. F.	NGT 44-005-808	5269
46	UNIV HOUSTON-HOUSTON	Owens, F. C.	HQ-LE	Hussain, A. K.	NGT 44-005-809	5270
46	UNIV ILLINOIS-CHICGO	Handschuh, R. F.	LERC	Litvin, F. L.	NAG 3-48	2914
46	UNIV ILLINOIS-CHICGO	Handschuh, R. F.	LERC	Litvin, F. L.	NAG 3-655	2915
46	UNIV ILLINOIS-CHICGO	Handschuh, R. F.	LERC	Litvin, F. L.	NAG 3-783	2917
46	UNIV ILLINOIS-CHICGO	Bulzan, D. L.	LERC	Aggarwal, S. K.	NAG 3-796	2918
46	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Bentsman, J.	NGT 00-050-356	2963
46	UNIV ILLINOIS-URBANA	Owens, F. C.	HQ-XE	Dutton, J. C.	NGT 00-050-384	2965
46	UNIV OF KANSAS	Mixon, R. W.	LARC	Barr, B. G.	NAG 1-912	3135
46	UNIV OF KANSAS	Owens, F. C.	HQ-XE	Barr, B. G.	NGT 00-050-113	3155
46	UNIV OF KENTUCKY	Oswald, F. B.	LERC	Seybert, A. F.	NAG 3-912	3166
46	UNIV MARYLAND-COL PK	Rodriguez, G. E.	GSFC	Kirk, J. A.	NAG 5-396	3308
46	UNIV MICH-ANN ARBOR	Miura, H.	ARC	Kikuchi, N.	NCA 2-136	3783
46	UNIV MICH-ANN ARBOR	McQuillen, J.	LERC	Merte, H.	NAG 3-589	3725
46	UNIV MICH-ANN ARBOR	Chiaromonte, F. P.	LERC	Merte, H., Jr.	NAG 3-663	3728
46	U MINN-MNPLS-ST PAUL	Robinson, J. C.	LARC	Tamma, K. K.	NAG 1-808	3813
46	U MINN-MNPLS-ST PAUL	Gaugler, R. E.	LERC	Simon, T. W.	NAG 3-286	3815
46	U MINN-MNPLS-ST PAUL	Simon, F. F.	LERC	Patankar, S. V.	NAG 3-579	3816
46	U MINN-MNPLS-ST PAUL	O'brien, J. E.	LERC	Simon, T. W.	NAG 3-881	3820
46	UNIV NEBRASKA-LINCLN	Owens, F. C.	HQ-XE	Gorman, M. R.	NGT 00-050-214	3959
46	UNIV NEBRASKA-LINCLN	Owens, F. C.	HQ-LE	Alexander, D. R.	NGT 00-070-017	3960
46	UNIV N CAR-CHARLOTTE	Vranish, J. M.	GSFC	De Hoff, P. H.	NAG 5-922	4470
46	UNIV N CAR-CHARLOTTE	Owens, F. C.	HQ-XE	Daneshvar, K.	NGT 00-050-253	4472
46	UNIV OF PACIFIC	Steinle, F. W., Jr.	ARC	Pejack, E. R.	NAG 2-505	2230
46	UNIV OF SANTA CLARA	Kutler, P.	ARC	Hight, T. K.	NCA 2-282	2247
46	UNIV SO CAROLINA-COL	Darcy, E. C.	JSC	Morehouse, J. H.	NAG 9-187	5026
46	UNIV SO CAROLINA-COL	Wagner, H. A.	JSC	Morehouse, J. H.	NAG 9-311	5028
46	UNIV OF SO FLORIDA	Dustin, M. O.	LERC	Crane, R. A.	NAG 3-851	2678
46	UNIV OF SOUTHERN CAL	Owens, F. C.	HQ-XE	Arbib, M.	NGT 00-050-163	2272
46	UNIV TEXAS-AUSTIN	Martin, E. D.	ARC	Panton, R. L.	NCA 2-179	5341
46	UNIV TEXAS-AUSTIN	Tassel, K. V.	JSC	Varghese, P. L.	NAG 9-201	5311
46	UNIV TEXAS-AUSTIN	Heydorn, R. P.	JSC	Bard, J. F.	NAG 9-278	5315
46	UNIV TEXAS-AUSTIN	Van Tassel, K. E.	JSC	Varghese, P. L.	NAG 9-301	5319
46	UNIV TEXAS-AUSTIN	Kiefling, L.	MSFC	Craig, R. R.	NAS 8-35338	5334
46	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-XE	Koen, B. V.	NGT 00-050-223	5353
46	UNIV TEXAS-EL PASO	Holder, B. W.	JSC	Craver, W. L., Jr.	NAG 9-146	5392
46	UNIV OF TOLEDO	Curran, F. M.	LERC	Keith, T. G., Jr.	NAG 3-713	4754
46	UNIV OF TOLEDO	Curran, F.	LERC	Keith, T. G.	NAG 3-757	4756

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
46	UNIV OF VIRGINIA	Fleming, D. P.	LERC	Allaire, P. E.	NAG 3-909	5612
46	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Pilkey, W. D.	NGT 00-050-343	5644
46	UNIV OF VIRGINIA	Owens, F. C.	HQ-LE	Pilkey, W.	NGT 00-050-116	5639
46	UNIV OF WALES	Starnes, J. H.	LARC	Williams, F. W.	NCCW 2	5943
46	UNIV OF WASHINGTON	Cullingford, H. S.	JSC	Lewis, W. C.	NAG 9-227	5757
46	UNIV OF WASHINGTON	Robinson, J. C.	LARC	Emery, A. F.	NAG 1-41	5729
46	UNIV OF WASHINGTON	Whitcomb, J. D.	LARC	Lin, K. Y.	NAG 1-621	5732
46	UNIV WISC-MADISON	Kittel, P.	ARC	Vansciver, S. W.	NAG 2-358	5836
46	UNIV WISC-MILWAUKEE	Schafer, C. F.	MSFC	Amano, R.	NAG 8-617	5906
46	UTAH STATE UNIV	Marmolejo, J.	JSC	Bingham, G. E.	NAS 9-17484	5464
46	UTAH STATE UNIV	Nelson, P. J.	MSFC	Phillips, W. F.	NAS 8-37754	5463
46	VANDERBILT UNIVERSTY	Owens, F. C.	HQ-XE	Pitz, R. W.	NGT 00-050-143	5090
46	VANDERBILT UNIVERSTY	Owens, F. C.	HQ-XE	Pitz, R. W.	NGT 00-050-263	5091
46	COLLEGE OF WM & MARY	Tanner, J. A.	LARC	Anderson, C. M.	NCC 1-40	5491
46	VIRGINIA POLY INST	Horner, G. C.	LARC	Robertshaw, H. H.	NAG 1-570	5669
46	VIRGINIA POLY INST	Owens, F. C.	HQ-XE	Telionis, D. P.	NGT 00-050-144	5719
46	VIRGINIA POLY INST	Owens, F. C.	HQ-XE	Mahan, J. R.	NGT 00-070-088	5721
46	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	O'brien, W. F.	NGT 00-050-001	5714
46	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Ng, W. F.	NGT 00-050-089	5716
46	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Telionis, D. P.	NGT 00-050-123	5718
46	WASHINGTON UNIVERSTY	Chato, D. J.	LERC	Hochstein, J. I.	NAG 3-578	3890
46	WASHINGTON UNIVERSTY	Miller, D. R.	LERC	Hochstein, J. I.	NAG 3-817	3891
46	WASHINGTON UNIVERSTY	Hardy, T. L.	LERC	Hochstein, J. I.	NAG 3-905	3892
46	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Szabo, B. A.	NGT 00-050-138	3914
46	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-LE	Hahn, H. T.	NGT 26-010-801	3922
46	WAYNE STATE UNIV	Chaiko, L. I.	LERC	Rivin, E. I.	NAG 3-918	3810
46	WEST VIRGINIA UNIV	Robinson, J. C.	LARC	Tamma, K. K.	NAG 1-571	5820
46	WESTERN MICHIGAN U	Bogue, R. K.	ARC	Hoadley, A. W.	NCC 2-493	3812
46	WRIGHT STATE UNIV	Swanson, T. D.	GSFC	Faghri, A.	NAG 5-956	4777
46	YALE UNIVERSITY	Freed, A. D.	LERC	Onat, E. T.	NAG 3-834	2461
47	ALFRED UNIVERSITY	Shaw, N. J.	LARC	Laughner, J. W.	NCC 3-59	4107
47	AUBURN UNIV-AUBURN	Taylor, R. A.	MSFC	Askew, R. F.	NAG 8-719	1026
47	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-LE	Jang, B.	NGT 00-050-084	1039
47	BROWN UNIVERSITY	Browne, I. D.	JSC	Hess, P. C.	NAG 9-109	4975
47	CALIF INST OF TECH	Browne, I. D.	JSC	Burnett, D. S.	NAG 9-94	1476
47	CALIF INST OF TECH	Crews, J. H., Jr.	LARC	Knauss, W. G.	NAG 1-474	1451
47	CARNEGIE-MELLON UNIV	Dreshfield, R. L.	LERC	Bernstein, I. M.	NAG 3-463	4826
47	CASE WESTERN RESERVE	Nathal, M. V.	LERC	Vedula, K. M.	NAG 3-387	4486
47	CASE WESTERN RESERVE	Lowell, C. E.	LERC	Rozak, G. A.	NAG 3-464	4488
47	CASE WESTERN RESERVE	Halford, G. R.	LERC	Manson, S. S.	NAG 3-553	4491
47	CASE WESTERN RESERVE	Nathal, M. V.	LERC	Vedula, K. M.	NAG 3-563	4492
47	CASE WESTERN RESERVE	Powell, J. A.	LERC	Pirouz, P.	NAG 3-758	4509
47	CASE WESTERN RESERVE	Hurwitz, F. I.	LERC	Ishida, H.	NAG 3-769	4512
47	CASE WESTERN RESERVE	Freedman, M. R.	LERC	Feke, D. L.	NAG 3-785	4514
47	CASE WESTERN RESERVE	Gross, B.	LERC	Ballarini, R.	NAG 3-856	4526
47	CASE WESTERN RESERVE	Chait, A.	LERC	Claspy, P. C.	NAG 3-878	4527
47	CASE WESTERN RESERVE	Meador, M. A.	LERC	Laxmanan, V.	NCC 3-74	4547
47	CASE WESTERN RESERVE	Jaskowiak, M. H.	LERC	Cooper, A. R.	NCC 3-82	4550
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Michal, G. M.	NCC 3-94	4553
47	CASE WESTERN RESERVE	Glasgow, T. K.	LERC	Qutubuddin, S.	NCC 3-108	4556
47	CASE WESTERN RESERVE	Glasgow, T. K.	LERC	Edwards, R. V.	NCC 3-115	4558
47	CASE WESTERN RESERVE	Owens, F. C.	HQ-LE	Michal, G. M.	NGT 00-050-087	4559
47	CASE WESTERN RESERVE	Owens, F. C.	HQ-LE	Pirouz, P.	NGT 36-027-807	4567
47	CLARKSON UNIVERSITY	Fripp, A. L.	LARC	Carlson, F. M.	NAG 1-397	4122
47	CLEMSON UNIV-CLEMSON	Brewer, W. D.	LARC	Rack, H. J.	NAG 1-724	5009
47	CLEMSON UNIV-CLEMSON	Buckley, J. D.	LARC	Barron, C. H.	NAG 1-820	5011
47	CLEMSON UNIV-CLEMSON	Farley, G. L.	LARC	Kennedy, J. M.	NCC 1-93	5016
47	CLEMSON UNIV-CLEMSON	Farley, G. L.	LARC	Kennedy, J. M.	NCC 1-127	5017
47	CLEMSON UNIV-CLEMSON	Farley, G. L.	LARC	Huey, C.	NCC 1-128	5018
47	CLEVELAND STATE UNIV	Gray, H. R.	LARC	Hayhurst, D. T.	NCC 3-60	4597

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
47	CLEVELAND STATE UNIV	Hurwitz, F. I.	LERC	Hemann, J. H.	NAG 3-749	4579
47	CLEVELAND STATE UNIV	Klima, S. J.	LERC	Hemann, J. H.	NCC 3-24	4590
47	CLEVELAND STATE UNIV	Miller, R. A.	LERC	Chang, G. C.	NCC 3-27	4591
47	CLEVELAND STATE UNIV	Calomino, A. M.	LERC	Ghosn, L.	NCC 3-46	4593
47	CLEVELAND STATE UNIV	Glasgow, T. K.	LERC	Kramerich, G. L.	NCC 3-61	4598
47	CLEVELAND STATE UNIV	Wittenberger, J. D.	LERC	Tewari, S. N.	NCC 3-72	4603
47	CLEVELAND STATE UNIV	Savino, J. M.	LERC	Pintz, A.	NCC 3-77	4604
47	CLEVELAND STATE UNIV	Gyekenyesi, J. P.	LERC	Hemann, J. H.	NCC 3-81	4605
47	CLEVELAND STATE UNIV	Gray, H. R.	LERC	Tewari, S. N.	NCC 3-95	4607
47	CLEVELAND STATE UNIV	Glasgow, T. K.	LERC	Tewari, S. N.	NCC 3-96	4608
47	CLEVELAND STATE UNIV	Lee, J. E.	MSFC	Tewari, S. N.	NAG 8-91	4585
47	COLUMBIA UNIVERSITY	Scheuermann, C. M.	LERC	Tien, J. K.	NAG 3-57	4138
47	COLUMBIA UNIVERSITY	Petrasek, D. W.	LERC	Tien, J. K.	NAG 3-410	4139
47	COLUMBIA UNIVERSITY	Petrasek, D. W.	LERC	Tien, J. K.	NAG 3-720	4140
47	DARTMOUTH COLLEGE	Nathal, M. V.	LERC	Baker, I.	NAG 3-775	3971
47	GEORGE WASHINGTON U	Mixson, J. S.	LARC	Liebowitz, H.	NAG 1-158	2519
47	GEORGE WASHINGTON U	Westfall, L. J.	LERC	Hobbs, H. H.	NAG 3-642	2528
47	ILL INST OF TECH	Glasgow, T. K.	LERC	Nash, P. G.	NAG 3-409	2822
47	ILL INST OF TECH	Gray, H. R.	LERC	Nash, P.	NCC 3-101	2823
47	IOWA STATE UNIV	Browne, I. D.	JSC	Kracher, A.	NAG 9-112	3068
47	JOHNS HOPKINS UNIV	Heyman, J. S.	LARC	Green, R. E., Jr.	NAG 1-211	3225
47	JOHNS HOPKINS UNIV	Royster, D. M.	LARC	Shechtman, D.	NAG 1-399	3226
47	JOHNS HOPKINS UNIV	Heyman, J. S.	LARC	Wagner, J. W.	NAG 1-687	3229
47	JOHNS HOPKINS UNIV	Vary, A.	LERC	Green, R. F., Jr.	NAG 3-728	3231
47	JOHNS HOPKINS UNIV	Owens, F. C.	HQ-LB	Green, R.	NGT 21-001-802	3269
47	LEHIGH UNIVERSITY	Browne, I. D.	JSC	Goldstein, J. I.	NAG 9-45	4855
47	LONGWOOD COLLEGE	Fripp, A. L.	LARC	Barber, P. G.	NAG 1-627	5526
47	MASS INST OF TECH	Browne, I. D.	JSC	Prinn, R. G.	NAG 9-108	3554
47	MASS INST OF TECH	Kautz, H. E.	LERC	Williams, J. H., Jr.	NAG 3-328	3504
47	MASS INST OF TECH	Harf, F. H.	LERC	Cornie, J. A.	NAG 3-808	3513
47	MASS INST OF TECH	Bhatt, R. T.	LERC	Haggerty, J. S.	NAG 3-845	3516
47	MASS INST OF TECH	Winsa, E. A.	LERC	Szekely, J.	NAS 3-24642	3589
47	MASS INST OF TECH	Harf, F. H.	LERC	Shiohara, Y.	NAS 3-24875	3591
47	MASS INST OF TECH	Harf, F. H.	LERC	Szekely, J.	NAS 3-25074	3592
47	MASS INST OF TECH	Currevi, P. A.	MSFC	Russell, K. C.	NAG 8-84	3542
47	MASS INST OF TECH	Crouch, R.	HQ-EN	Latanision, R. M.	NSG 7645	3644
47	MICHIGAN TECH UNIV	De Grah, H.	LERC	Hellawell, A.	NAG 3-560	3706
47	MISSISSIPPI STATE U	Fikes, L. A.	MSFC	Hall, W. B.	NAG 8-545	3861
47	NO CAR A&T STATE U	Dicus, D. L.	LARC	Avva, V. S.	NAG 1-404	4414
47	NO CAROLINA STATE U	Wakelyn, N. T.	LARC	Theil, M. H.	NAG 1-723	4432
47	NO CAROLINA STATE U	Ethridge, E.	MSFC	Koch, C. C.	NAG 8-475	4443
47	NORTHWESTERN UNIV	Englund, D. R.	LERC	Brittain, J. O.	NAG 3-501	2825
47	NORTHWESTERN UNIV	Chait, A.	LERC	Davis, S. H.	NAG 3-747	2828
47	OHIO STATE UNIV	Sanders, W. A.	LERC	Drummond, C. H.	NAG 3-824	4642
47	OHIO STATE UNIV	Soltis, D. G.	LERC	Altan, T.	NAG 3-930	4646
47	OHIO STATE UNIV	Yates, I. C.	MSFC	Stroud, D. G.	NAG 8-483	4652
47	OLD DOMINION UNIV	Walker, G. H.	LARC	Heinbockel, J. H.	NAG 1-148	5531
47	PENN STATE U-UNIV PK	Nathal, M. V.	LERC	Koss, D. A.	NAG 3-827	4878
47	PRAIRIE VIEW A&M U	Leger, L.	JSC	Wang, F. C.	NAS 9-17406	5109
47	PRINCETON UNIVERSITY	Chai, A.	LERC	Saville, D. A.	NAG 3-447	4024
47	PURDUE UNIVERSITY	Bowles, K. A.	LERC	Caruthers, J. M.	NAG 3-599	3008
47	RENSSELAER POLY-NY	Johnston, N. J.	LARC	Sternstein, S. S.	NAG 1-253	4286
47	RENSSELAER POLY-NY	Winsa, E. A.	LERC	Glicksman, M. E.	NAG 3-333	4290
47	RENSSELAER POLY-NY	Santoro, G. J.	LERC	German, R. M.	NAG 3-744	4293
47	RENSSELAER POLY-NY	Schaefer, D. A.	MSFC	Wiedemier, H.	NAS 8-32936	4303
47	RICE UNIVERSITY	Parker, R. A.	JSC	Dufour, R. J.	NAG 9-123	5117
47	RICE UNIVERSITY	Horiuchi, G. K.	JSC	Brotzen, F. R.	NAG 9-282	5121
47	ST MARYS COLLEGE	Matus, L. G.	LERC	Bellina, J. J.	NAG 3-890	3042
47	SAN JOSE STATE UNIV	Riccitiello, S. R.	ARC	Anderson, R. N.	NCC 2-3	1598
47	SAN JOSE STATE UNIV	Riccitiello, S. R.	ARC	Anderson, R. N.	NCC 2-195	1602

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
47	GEORGIA INST OF TECH	O'brien, T. K.	LARC	Rehfield, L. W.	NAG 1-637	2697
47	GEORGIA INST OF TECH	Verrilli, M. J.	LERC	Antolovich, S. D.	NAG 3-503	2711
47	GEORGIA INST OF TECH	Harwell, R. J.	MSFC	Tucker, D. S.	NAG 8-103	2720
47	STANFORD UNIVERSITY	Nelson, H. G.	ARC	Springer, G. S.	NCC 2-304	1738
47	STANFORD UNIVERSITY	Nelson, H. G.	ARC	Nelson, D. V.	NCC 2-510	1753
47	STANFORD UNIVERSITY	Fogle, V.	MSFC	Feigelson, R. S.	NAG 8-489	1648
47	STATE UNIV NY-BUFFAL	Gross, B.	LERC	Wetherhold, R. C.	NAG 3-862	4342
47	SYRACUSE UNIVERSITY	Telesman, J.	LERC	Liu, H. W.	NAG 3-348	4383
47	TENNESSEE STATE UNIV	Randall, J. L.	MSFC	McCain, W. S.	NAG 8-101	5046
47	TEXAS A&M UNIVERSITY	Castner, W. L.	JSC	Roschke, P. N.	NAG 9-280	5184
47	TEXAS A&M UNIVERSITY	Crews, J. H., Jr.	LARC	Bradley, W. L.	NAG 1-443	5148
47	TEXAS A&M UNIVERSITY	Whitcomb, J. D.	LARC	Bradley, W. L.	NAG 1-659	5152
47	TEXAS A&M UNIVERSITY	Whitcomb, J. D.	LARC	Highsmith, A. L.	NAG 1-711	5153
47	TEXAS A&M UNIVERSITY	Whittenberger, J. D.	LERC	Wolfenden, A.	NAG 3-702	5159
47	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Schapery, R.	NGT 00-050-261	5206
47	TUSKEGEE INSTITUTE	Johnson, W. S.	LARC	Dillon, I. G.	NAG 1-447	1047
47	TUSKEGEE INSTITUTE	Johnson, W. S.	LARC	Jeelani, S.	NAG 1-742	1048
47	TUSKEGEE INSTITUTE	Penn, B. G.	MSFC	Jeelani, S.	NAG 8-38	1051
47	TUSKEGEE INSTITUTE	Randall, J.	MSFC	Jeelani, S.	NAG 8-44	1053
47	UNIV OF AKRON	Roberts, G. P.	LERC	Young, G. W.	NCC 3-104	4710
47	UNIV OF AKRON	Rosenthal, B. N.	LERC	Batur, C.	NCC 3-109	4711
47	UNIV ALA-BIRMINGHAM	Robinson, M. B.	MSFC	Andrews, J. B.	NAG 8-72	1063
47	UNIV ALA-BIRMINGHAM	Curreri, P. A.	MSFC	Andrews, J. B.	NAG 8-640	1065
47	UNIV ALA-BIRMINGHAM	Johnston, M. H.	MSFC	Andrews, J. B.	NAS 8-36461	1070
47	UNIV ALA-BIRMINGHAM	Hediger, L.	MSFC	Breland, N. D.	NAS 8-36736	1072
47	UNIV ALA-BIRMINGHAM	Owens, F. C.	HQ-LE	Andrews, J.	NGT 00-050-040	1074
47	UNIV ALA-HUNTSVILLE	Bennett, J. E.	JSC	Workman, G. L.	NAS 9-17962	1166
47	UNIV ALA-HUNTSVILLE	Fripp, A. L.	LARC	Rosenberger, F. E.	NAG 1-733	1077
47	UNIV ALA-HUNTSVILLE	Duvall, W.	LERC	Rosenberger, F. E.	NAS 3-25361	1140
47	UNIV ALA-HUNTSVILLE	Oran, W. A.	HQ-IC	Lundquist, C.	NAGW 812	1133
47	UNIV ALA-UNIVERSITY	Curreri, P. A.	MSFC	Stefanesai, D. M.	NAG 8-70	1179
47	UNIV ALA-UNIVERSITY	Black, R. E.	MSFC	Stefanesou, D. M.	NAG 8-469	1182
47	UNIV OF ARIZONA	Goldstein, S. H.	JSC	Ortiz, K.	NAG 9-259	1315
47	UNIV OF ARIZONA	Chait, A.	LERC	Poirier, D. R.	NAG 3-723	1284
47	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Weber, E. R.	NGT 00-070-074	1904
47	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Haller, E. F.	NGT 00-050-037	1892
47	UNIV CALIF-L ANGELES	Holanda, R.	LERC	Bunshah, R. F.	NAG 3-451	1985
47	UNIV CALIF-L ANGELES	Freedman, M. R.	LERC	Todd, J. A.	NAG 3-685	1986
47	UNIV CALIF-S BARBARA	Nelson, H. G.	ARC	Shanabarger, M. R.	NCC 2-63	2200
47	UNIV OF CINCINNATI	Bonacuse, P.	LERC	Jayaraman, N.	NAG 3-506	4721
47	UNIV OF DELAWARE	Dexter, H. B.	ARC	Pipes, R. B.	NAG 1-378	2478
47	UNIV OF DELAWARE	Jegley, D. C.	LARC	Pipes, R. B.	NAS 1-18758	2493
47	UNIV OF FLORIDA	Outlaw, R. A.	LARC	Hofflund, G. B.	NAG 1-671	2625
47	UNIV OF FLORIDA	Poe, C. C.	LARC	Sankar, B. V.	NAG 1-826	2629
47	UNIV HOUSTON-HOUSTON	Curry, D. M.	JSC	Shamsundar, N.	NAG 9-216	5242
47	UNIV ILLINOIS-URBANA	McGaw, M. A.	LERC	Socie, D. F.	NAG 3-465	2932
47	UNIV ILLINOIS-URBANA	Klima, S. J.	LERC	Dos Reis, H. L.	NAG 3-798	2938
47	UNIV MICH-ANN ARBOR	Johnston, N. J.	LARC	Yee, A. F.	NAG 1-607	3714
47	UNIV MICH-ANN ARBOR	Kinard, W. H.	LARC	Felbeck, D. K.	NAS 1-17008	3766
47	UNIV MICH-ANN ARBOR	Nathal, M. V.	LERC	Gibala, R.	NCC 3-76	3786
47	U MINN-MNPLS-ST PAUL	Browne, I. D.	JSC	Nier, A. O.	NAG 9-110	3828
47	UNIV OF NOTRE DAME	Matus, L. G.	LERC	Zeller, M. V.	NAG 3-428	3047
47	UNIV OF SANTA CLARA	Lincoln, K. A.	ARC	Yang, C. Y.	NCA 2-685501	2248
47	UNIV TENNESSEE-KNOXV	Nathal, M. V.	LERC	Oliver, B. F.	NAG 3-876	5060
47	UNIV TENNESSEE-KNOXV	Ruff, R.	MSFC	Makay, M. H.	NAS 8-37292	5074
47	UNIV TEXAS-AUSTIN	Crews, J.	JSC	Yew, C. H.	NAG 9-114	5306
47	UNIV TEXAS-AUSTIN	Castner, W. L.	JSC	Erskine, J. L.	NAG 9-199	5309
47	UNIV TEXAS-AUSTIN	Visentine, J. T.	JSC	Fink, M.	NAG 9-204	5313
47	UNIV TEXAS-AUSTIN	Horiuchi, G. K.	JSC	Marcus, H. L.	NAG 9-205	5314
47	UNIV TEXAS-EL PASO	Pigg, O. E.	JSC	Bronson, A.	NAG 9-175	5394

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
47	UNIV TEXAS-EL PASO	Castner, W. L.	JSC	Guard, R. W.	NAG 9-281	5395
47	UNIV TEXAS-EL PASO	Nunes, A. C.	MSFC	McClure, J. C.	NAS 8-37425	5397
47	UNIV OF TORONTO	Baker, D. J.	LARC	Tennyson, R. C.	NAGW 752	5934
47	UNIV OF UTAH	Riccitiello, S. R.	ARC	Bascom, W. D.	NAG 2-469	5440
47	UNIV OF UTAH	Crews, J. H.	LARC	Bascom, W. D.	NAG 1-705	5434
47	UNIV OF UTAH	Hinkley, J. A.	LARC	Bascom, W. D.	NAG 1-706	5435
47	UNIV OF UTAH	Gyekenyesi, J. P.	LERC	Shetty, D. K.	NAG 3-789	5442
47	UNIV OF VIRGINIA	Fripp, A. L.	ARC	Jesser, W. A.	NAG 1-350	5601
47	UNIV OF VIRGINIA	Dicus, D. L.	LARC	Wilsdorf, H. G.	NAG 1-745	5606
47	UNIV OF WASHINGTON	Castles, S. H.	GSFC	Riggle, P.	NAG 5-1038	5749
47	UNIV OF WASHINGTON	Titran, R. H.	LERC	Kaufman, M. J.	NAG 3-871	5737
47	UNIV OF WASHINGTON	Greenfield, M. A.	HQ-RM	Bradt, R. C.	NAGW 199	5760
47	UNIV WISC-MADISON	Glasgow, T. K.	LERC	Perepezko, J. H.	NAG 3-436	5838
47	UNIV WISC-MADISON	Lehoczy, S. L.	MSFC	Kou, S.	NAG 8-705	5864
47	UNIV OF WYOMING	Kourtides, D. A.	ARC	Zimmerman, R. S.	NAG 2-470	5914
47	UNIV OF WYOMING	Johnston, N. J.	LARC	Zimmerman, R. S.	NAG 1-277	5910
47	VANDERBILT UNIVERSTY	Oran, W.	HQ-IC	Bayuzik, K. Y.	NAGW 810	5084
47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Brinson, H. F.	NCC 2-71	5712
47	VIRGINIA POLY INST	Tenney, D. R.	LARC	Torgersen, P. E.	NAG 1-343	5662
47	VIRGINIA POLY INST	Everett, R. A.	LARC	Dowling, N. E.	NAG 1-822	5682
47	VIRGINIA POLY INST	Vary, A.	LERC	Henneke, E. G.	NAG 3-172	5693
47	WORCESTER POLY INST	Atkins, H. L.	MSFC	Tuler, F. R.	NAG 8-619	3688
47	YALE UNIVERSITY	Browne, I. D.	JSC	Longhi, J.	NAG 9-93	2466
47	YALE UNIVERSITY	Roberts, G. D.	LERC	Rosner, D. E.	NAG 3-898	2463
49	ARIZONA STATE UNIV	Chai, A.	LERC	Neitzel, G. P.	NAG 3-568	1214
49	AUBURN UNIV-AUBURN	Rupp, C. C.	MSFC	Green, M. E.	NAG 8-618	1022
49	AUBURN UNIV-AUBURN	Hengel, J. E.	MSFC	Foster, W. A.	NAG 8-683	1025
49	AUBURN UNIV-AUBURN	Martin, C. L.	MSFC	Storzini, R. H.	NAS 8-36147	1032
49	AUBURN UNIV-AUBURN	Dozier, J.	MSFC	Foster, W. A.	NAS 8-36288	1033
49	BOWIE STATE COLLEGE	Jones, G. K.	GSFC	Srivastava, S.	NAG 5-1054	3219
49	CALIF INST OF TECH	McGee, A. S.	HQ-XE	Albee, A. L.	NGT 05-003-790	1525
49	CAL STATE U-NRTHRDRG	Cramer, D. B.	HQ-S	Bluth, B. J.	NAGW 659	1556
49	CARNEGIE-MELLON UNIV	Andary, J. F.	GSFC	Khosla, P. K.	NAG 5-1091	4832
49	CARNEGIE-MELLON UNIV	Holcomb, L. B.	HQ-RC	Kanade, T.	NAGW 1175	4834
49	CASE WESTERN RESERVE	Lawrence, R. F.	LERC	Boulding, M. E.	NAG 3-406	4487
49	CASE WESTERN RESERVE	Vernon, R. W.	LERC	Kamotani, Y.	NAG 3-567	4493
49	CASE WESTERN RESERVE	Jacobson, T. P.	LERC	Ostrach, S.	NAG 3-570	4494
49	CASE WESTERN RESERVE	Tew, R. C.	LERC	Dybbs, A.	NAG 3-700	4504
49	CASE WESTERN RESERVE	Jaskowiak, M. H.	LERC	Hrma, P.	NAG 3-740	4508
49	CASE WESTERN RESERVE	Litt, J. S.	LERC	Loparo, U. A.	NAG 3-788	4516
49	CASE WESTERN RESERVE	Lesco, D. J.	LERC	Kadambi, J. R.	NAG 3-831	4523
49	CASE WESTERN RESERVE	Montegani, F. J.	LERC	McKeon, T. J.	NCC 3-42	4541
49	CASE WESTERN RESERVE	McGee, A. S.	HQ-XE	Prahl, J. M.	NGT 36-027-011	4565
49	CLEVELAND STATE UNIV	Madzsar, G. C.	LERC	Atherton, W. J.	NAG 3-889	4583
49	COLORADO STATE UNIV	Womack, W.	JSC	Phillips, R. W.	NAS 9-17168	2294
49	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Brutsaert, W.	NGT 00-050-335	4250
49	CUYAHOGA COMMUNITY C	Lawrence, R. F.	LERC	Candelario, A. R.	NAG 3-313	4615
49	FLORIDA A&M UNIV	Warren, L.	HQ-U	Humphries, F. S.	NGT 00-090-012	2584
49	FLORIDA A&M UNIV	Freeman, Y. B.	HQ-U	Rogers, D.	NGT 00-090-015	2585
49	GALLAUDET COLLEGE	Margolis, M.	HQ-U	Nissen, A. B.	NGT 00-090-013	2518
49	GEORGE WASHINGTON U	Morakis, J. C.	GSFC	Helgert, H. J.	NSG 5109	2549
49	GEORGE WASHINGTON U	Mikulas, M. M.	LARC	Liebowitz, H.	NAG 1-740	2524
49	GEORGETOWN UNIV	Owens, F. C.	HQ-LE	Krogh, P. F.	NGT 09-009-800	2552
49	HAMPTON UNIVERSITY	Hall Jr., J. B.	LARC	Spencer, J. H.	NAG 1-450	5507
49	HAMPTON UNIVERSITY	McGee, A. S.	HQ-XE	Spencer, J. W.	NGT 47-020-800	5525
49	HOWARD UNIVERSITY	Goodson, A.	GSFC	Gill, T. L.	NAG 5-995	2561
49	HOWARD UNIVERSITY	Young, J. W.	LARC	Bainum, P. M.	NSG 1414	2574
49	LINCOLN UNIV-PA	Menchan, D.	GSFC	Williams, W. W.	NCA 5-98	4863
49	LINCOLN UNIV-PA	Margolis, M.	HQ-U	Williams, W.	NGT 00-090-020	4864
49	MANHATTAN COLLEGE	Armstrong, E. S.	LERC	Naraghi, M. H.	NAG 3-892	4267

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	MASS INST OF TECH	Lee, A. T.	ARC	Young, L. R.	NAG 2-12	3493
49	MASS INST OF TECH	Meyer, G.	ARC	Athans, M.	NAG 2-297	3497
49	MASS INST OF TECH	Owens, F. C.	HQ-XE	Young, L. R.	NGT 00-050-218	3625
49	MASS INST OF TECH	Owens, F. C.	HQ-LE	Young, L.	NGT 00-050-077	3620
49	MASS INST OF TECH	Hartman, S. C.	HQ-RS	Mar, J. W.	NAGW 1335	3585
49	MICHIGAN TECH UNIV	Reid, M. A.	LERC	Cornilsen, B. C.	NAG 3-519	3705
49	MORGAN STATE UNIV	Menchan, D.	GSFC	De Loatch, E. M.	NCA 5-105	3276
49	MORGAN STATE UNIV	Sharp, M. J.	GSFC	Proctor, N.	NCA 5-109	3277
49	MORGAN STATE UNIV	Warren, L.	HQ-U	DeLoatch, E.	NGT 00-090-005	3278
49	MORGAN STATE UNIV	Freeman, Y. B.	HQ-U	Proctor, N.	NGT 00-090-019	3279
49	NEW MEX ST U-LAS CR	Pincus, B. R.	GSFC	Bawcom, D.	NAS 5-29149	4084
49	NEW YORK UNIVERSITY	Meyer, G.	ARC	Demmel, J. W.	NAG 2-493	4271
49	NO CAROLINA STATE U	Farmer, F. A.	LARC	McAllister, D. F.	NAG 1-696	4431
49	NO CAROLINA STATE U	Hartman, S. C.	HQ-RS	Dejarnette, F. R.	NAGW 1331	4447
49	OHIO STATE UNIV	Norman, S. D.	ARC	Smith, P. J.	NCA 2-288	4666
49	OHIO STATE UNIV	Shafto, M.	ARC	Woods, D. D.	NCA 2-351	4669
49	OHIO STATE UNIV	Shyne, R. J.	LERC	Lee, J. D.	NAG 3-706	4635
49	OHIO STATE UNIV	Fox, D. S.	LERC	Cawley, J. D.	NAG 3-755	4637
49	OHIO STATE UNIV	Stearns, C. A.	LERC	Peters, L.	NAG 3-784	4640
49	OHIO STATE UNIV	Jones, C. S.	MSFC	Richardson, R. W.	NAS 8-35595	4663
49	OLD DOMINION UNIV	Roberts, B. B.	JSC	Ash, R. L.	NAG 9-308	5569
49	OLD DOMINION UNIV	Bush, H. G.	LARC	Razzaq, Z.	NAG 1-336	5533
49	OLD DOMINION UNIV	Wieting, A. R.	LARC	Thornton, E. A.	NSG 1321	5595
49	OLD DOMINION UNIV	Owens, F. C.	HQ-LB	Tiwari, S.	NGT 47-003-029	5592
49	PENN STATE U-UNIV PK	Hartman, S. C.	HQ-RS	Merkle, C. L.	NAGW 1356	4902
49	PRINCETON UNIVERSITY	Haggard, J.	LERC	Williams, F. A.	NAS 3-24640	4043
49	PURDUE UNIVERSITY	Stroud, W. J.	LARC	Sun, C. T.	NAG 1-581	2993
49	PURDUE UNIVERSITY	Blech, R. A.	LERC	Ecer, A.	NAG 3-858	3012
49	RENSELAER POLY-NY	Truskowski, W.	GSFC	Wozny, M. J.	NAG 5-487	4296
49	RENSELAER POLY-NY	Lawrence, R. F.	LARC	Burnett, N.	NAG 3-544	4291
49	RENSELAER POLY-NY	Hartman, S. C.	HQ-RS	Saridis, G. N.	NAGW 1333	4301
49	GEORGIA INST OF TECH	Palmer, E. A.	ARC	Mitchell, C. M.	NAG 2-413	2707
49	GEORGIA INST OF TECH	Vykukal, H. C.	ARC	Olson, L. H.	NSG 2356	2748
49	GEORGIA INST OF TECH	Eggers, D. S.	JSC	Cooke, W. P.	NAS 9-17381	2736
49	GEORGIA INST OF TECH	Huff, D. L.	LERC	Sankar, L. N.	NAG 3-768	2715
49	GEORGIA INST OF TECH	Margolis, M.	HQ-U	Chesnutt, C. C.	NGT 00-090-010	2746
49	SPELMAN COLLEGE	White, B.	HQ	Falconer, E.	NGT 00-090-003	2754
49	SPELMAN COLLEGE	Margolis, M.	HQ-U	Hibbard, L.	NGT 00-090-018	2755
49	STANFORD UNIVERSITY	Meyer, G.	ARC	Franklin, G. F.	NAG 2-359	1634
49	STANFORD UNIVERSITY	Ennis, D. J.	ARC	Goodman, J. W.	NCA 2-78	1681
49	STANFORD UNIVERSITY	Kwak, D.	ARC	Chang, I. D.	NCA 2-198	1696
49	STANFORD UNIVERSITY	Chow, L.	ARC	Banks, P.	NCA 2-333	1720
49	STANFORD UNIVERSITY	Vykukal, H. C.	ARC	Leifer, L.	NCC 2-295	1737
49	STANFORD UNIVERSITY	Keith, B. H.	GSFC	Banks, P. M.	NCC 5-30	1761
49	STANFORD UNIVERSITY	Leblanc, G. R.	JSC	Banks, P. M.	NCC 9-15	1762
49	STANFORD UNIVERSITY	Steinberg, R.	LERC	Chase, R. A.	NAG 3-914	1641
49	STANFORD UNIVERSITY	McGee, A. S.	HQ-XE	Bershtader, D.	NGT 05-020-412	1786
49	STATE U NY-STONY BRK	Calomino, A.	LERC	Rubinstein, A. A.	NAG 3-751	4355
49	TEXAS A&M UNIV SYSTM	Stubbs, R. M.	LERC	Peddlicord, K. L.	NAG 3-820	5145
49	TEXAS A&M UNIVERSITY	Morakis, J. C.	GSFC	Georgheades, C. N.	NAG 5-778	5164
49	TEXAS A&M UNIVERSITY	Kennedy, R. C.	JSC	Best, F. R.	NAG 9-142	5170
49	TEXAS A&M UNIVERSITY	Henry, M. F.	JSC	Young, T.	NAG 9-192	5177
49	TEXAS A&M UNIVERSITY	Sunkel, J. W.	JSC	Parlos, A. G.	NAG 9-275	5182
49	TEXAS A&M UNIVERSITY	Stroughal, G.	JSC	Porteiro, J. R.	NAS 9-16443	5198
49	TEXAS A&M UNIVERSITY	Madzsar, G. C.	LERC	Taylor, H. F.	NAG 3-846	5161
49	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Peddlicord, K. L.	NGT 00-050-388	5210
49	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-LB	Jones, W. B.	NGT 44-001-800	5214
49	TUSKEGEE INSTITUTE	Hardy, T. L.	LERC	Ray, P. R.	NAG 3-726	1049
49	UNIV OF AKRON	Hergenrother, P. M.	LARC	Kelley, F. N.	NAG 1-779	4688
49	UNIV OF AKRON	Stone, J. R.	LERC	Serafini, J. S.	NAG 3-637	4697

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	UNIV OF AKRON	Proctor, M. P.	LERC	Braun, M. J.	NAG 3-675	4699
49	UNIV ALA-BIRMINGHAM	Snyder, R.	MSFC	Rosenblum, W. E.	NAG 8-743	1067
49	UNIV ALA-HUNTSVILLE	Lindberg, J. P.	ARC	Ford, D.	NAG 8-717	1127
49	UNIV ALA-HUNTSVILLE	Bachtel, F. D.	MSFC	Chen, C. P.	NAG 8-92	1099
49	UNIV ALA-HUNTSVILLE	Hale, J. P.	MSFC	Rogers, J. G.	NAG 8-546	1109
49	UNIV ALA-HUNTSVILLE	Richards, J. S.	MSFC	Gilbert, J. A.	NAG 8-686	1120
49	UNIV ALA-HUNTSVILLE	Hale, J. P.	MSFC	Rogers, J. G.	NAG 8-706	1124
49	UNIV ALA-HUNTSVILLE	Morrone, C. A.	MSFC	Alexander, J. I.	NAG 8-724	1129
49	UNIV ALA-HUNTSVILLE	Curreri, P. A.	MSFC	Wu, M. K.	NCC 8-2	1168
49	UNIV ALA-HUNTSVILLE	Wolfsberger, J. W.	MSFC	Ford, D. R.	NCC 8-13	1170
49	UNIV ALA-HUNTSVILLE	Rosendhal, J. D.	HQ-E	Wessling, F. C.	NAGW 847	1134
49	UNIV ALA-HUNTSVILLE	Owens, F. C.	HQ-LB	Karr, G. R.	NGT 01-008-021	1178
49	UNIV ALA-UNIVERSITY	Curreri, T. A.	MSFC	Stefanescu, D. M.	NCC 8-3	1186
49	UNIV ALA-UNIVERSITY	Owens, F. C.	HQ-LE	Freeman, L. M.	NGT 01-002-099	1187
49	UNIV OF ARIZONA	Sharp, G. R.	LERC	Somner, R. E.	NAS 3-25522	1377
49	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Hunten, D. M.	NAGW 546	1323
49	UNIV OF ARIZONA	Hartman, S. C.	HQ-RS	Lewis, J. S.	NAGW 1332	1368
49	UNIV CALIF-BERKELEY	Meyer, G.	ARC	Sastry, S. S.	NAG 2-243	1792
49	UNIV CALIF-BERKELEY	Stocker, D. P.	LERC	Pagni, P. J.	NAG 3-443	1803
49	UNIV CALIF-IRVINE	Ross, H. D.	LERC	Sirignano, W. A.	NAG 3-627	1949
49	UNIV CALIF-L ANGELES	Iliff, K. W.	ARC	Balakrishnan, A. V.	NCC 2-374	2049
49	UNIV CALIF-L ANGELES	Sobieski, J.	LARC	Schmit, L. A., Jr.	NSG 1490	2063
49	UNIV CALIF-SAN DIEGO	Ross, H.	LERC	Libby, P. A.	NAG 3-654	2080
49	UNIV CALIF-SAN DIEGO	Sacksteder, K. R.	LERC	Berlad, A. L.	NAS 3-24639	2134
49	UNIV OF CENTRAL FLA	McGee, A. S.	HQ-XE	Anderson, L. A.	NGT 00-060-002	2622
49	UNIV OF CHICAGO	Horz, F.	JSC	Simpson, J. A.	NAG 9-309	2863
49	UNIV OF CINCINNATI	Owens, F. C.	HQ-XE	Huston, R. L.	NGT 00-070-048	4738
49	UNIV OF CINCINNATI	Hartman, S. C.	HQ-RS	Rubin, S. G.	NAGW 1407	4730
49	UNIV COLORADO-BOLDR	Knight, N. F.	LARC	Dow, J. O.	NAG 1-802	2307
49	UNIV COLORADO-BOLDR	Hartman, S. C.	HQ-RS	Morganthaler, G. W.	NAGW 1388	2389
49	UNIV OF DAYTON	Telesman, J.	LERC	Hartman, G.	NAG 3-774	4744
49	UNIV OF HAWAII-MANOA	Morakis, J. C.	GSFC	Lin, S.	NAG 5-931	2767
49	UNIV OF HAWAII-MANOA	Wales, R. O.	GSFC	Longfield, D.	NAS 5-28403	2798
49	UNIV HOUSTON-HOUSTON	Juday, R.	JSC	Bourgeois, B.	NAG 9-206	5236
49	UNIV HOUSTON-HOUSTON	Eggers, D. S.	JSC	Long, S. A.	NAG 9-219	5244
49	UNIV HOUSTON-HOUSTON	McGee, A. S.	HQ-XE	Bannerot, R. B.	NGT 44-005-803	5267
49	UNIV OF IDAHO	Miller, W. H.	GSFC	Maki, G. K.	NAG 5-1043	2815
49	UNIV OF IDAHO	Hartman, S. C.	HQ-RS	Maki, G. K.	NAGW 1406	2816
49	UNIV ILLINOIS-CHICGO	Meyer, G.	ARC	Grossman, R.	NAG 2-513	2912
49	UNIV ILLINOIS-CHICGO	Shannon, J. L.	LERC	Chudnovsky, A.	NAG 3-754	2916
49	UNIV ILLINOIS-CHICGO	Gross, K. W.	MSFC	Chire, H. H.	NAG 8-106	2919
49	UNIV ILLINOIS-URBANA	Greene, W. H.	LARC	Lopez, L. A.	NAG 1-646	2925
49	UNIV OF IOWA	Owens, F. C.	HQ-XE	Arora, J.	NGT 00-050-362	3118
49	UNIV OF KANSAS	Samos, J.	LARC	Barr, B. G.	NAG 1-761	3132
49	UNIV OF KENTUCKY	Olson, S. L.	LERC	Altenkirch, R. A.	NAS 3-23901	3168
49	UNIV MARYLAND-COL PK	Degnan, J. J.	GSFC	Hochuli, U.	NAG 5-263	3305
49	UNIV MARYLAND-COL PK	Dombrowski, M.	GSFC	Wilkerson, T. D.	NAG 5-323	3306
49	UNIV MARYLAND-COL PK	Morakis, J. C.	GSFC	Narayan, P.	NAG 5-923	3335
49	UNIV MARYLAND-COL PK	Ford, F. E.	GSFC	Anand, D. K.	NAG 5-955	3339
49	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Boroson, H. R.	NGT 21-002-254	3405
49	UNIV OF MIAMI	Wales, R.	GSFC	Brown, O.	NAS 5-29338	2669
49	UNIV MICH-ANN ARBOR	Malin, J. T.	JSC	Kieras, D.	NAG 9-139	3748
49	UNIV MICH-ANN ARBOR	Aydelott, J. C.	LERC	Kaviany, M.	NAS 3-25366	3771
49	UNIV MICH-ANN ARBOR	Bilbro, J. W.	MSFC	Hays, P. B.	NAG 8-741	3747
49	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LB	Weintraub, D. J.	NGT 23-005-802	3804
49	UNIV MICH-ANN ARBOR	Hartman, S. C.	HQ-RS	Ulaby, F. T.	NAGW 1334	3762
49	U MINN-MNPLS-ST PAUL	Tew, R. C.	LERC	Goldberg, L. F.	NAG 3-693	3819
49	UNIV MISS-UNIVERSITY	Owens, F. C.	HQ-XE	Hackett, R. M.	NGT 00-050-365	3873
49	UNIV MO-COLUMBIA	Farmer, F. H.	LARC	Bao, H. P.	NAG 1-875	3879
49	UNIV NEBRASKA-LINCLN	Miller, W. H.	GSFC	Sayood, K.	NAG 5-916	3949

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	UNIV OF NEW MEXICO	Gutierrez, O. A.	HQ-U	Purvines, G. B.	NGT 32-004-770	4105
49	UNIV OF NOTRE DAME	Miller, W. H.	GSFC	Costello, D.	NAG 5-557	3049
49	UNIV OF PENNSYLVANIA	Premack, T.	GSFC	Bajcsy, R.	NAG 5-1045	4941
49	UNIV OF PITTSBURGH	Mihaloew, J. R.	LERC	Vogt, W. B.	NAG 3-729	4954
49	UNIV OF SANTA CLARA	Holst, T. L.	ARC	Ma, J. T.	NCA 2-201	2243
49	UNIV STHN COLORADO	Holland, V. B.	ARC	Dunn, W. R.	NCC 2-373	2452
49	UNIV TENNESSEE-KNOXV	Kassel, P. C.	LARC	Steinhoff, J. S.	NAG 1-560	5054
49	UNIV TENNESSEE-KNOXV	Chai, A.	LERC	Parang, M.	NAS 3-25359	5070
49	UNIV TENNESSEE-KNOXV	Scott, D. R.	MSFC	Green, W. L.	NAG 8-630	5062
49	UNIV TEXAS-AUSTIN	Appler, R.	GSFC	Shelvs, P. J.	NAS 5-29404	5330
49	UNIV TEXAS-AUSTIN	Erickson, J. D.	JSC	Kuipers, B.	NAG 9-200	5310
49	UNIV TEXAS-AUSTIN	Simon, F. F.	LERC	Crawford, M. E.	NAG 3-864	5289
49	UNIV TEXAS-AUSTIN	Schultz, D.	LERC	Nozette, S.	NAG 3-928	5291
49	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-LB	Hull, D. G.	NGT 44-012-803	5362
49	UNIV TEXAS-DALLAS	Meyer, G.	ARC	Hunt, C. R.	NAG 2-366	5367
49	UNIV TEXAS-EL PASO	Owens, F. C.	HQ-XE	McClure, J. C.	NGT 00-070-086	5399
49	UNIV TEXAS-EL PASO	Owens, F. C.	HQ-XE	McClure, J. C.	NGT 00-070-087	5400
49	U TEX HLTH SC CTR-DA	Womack, W. D.	JSC	Gaffney, F. A.	NAS 9-17167	5415
49	UNIV OF TOLEDO	Kiraly, L. J.	LERC	Standley, H. M.	NAG 3-699	4752
49	UNIV OF TOLEDO	Chai, A. T.	LERC	Dewitt, K. J.	NCC 3-34	4771
49	UNIV OF VIRGINIA	Lamb, G. M.	GSFC	Mattauch, R. J.	NAS 5-24218	5632
49	UNIV OF VIRGINIA	Storaasli, O. O.	LARC	Ortega, J. M.	NAG 1-46	5598
49	UNIV WISC-MADISON	Stocker, D. P.	LERC	Farrell, P. V.	NAG 3-718	5839
49	VANDERBILT UNIVERSTY	Wood, G. M.	LARC	Potter, J. L.	NAG 1-878	5080
49	VIRGINIA POLY INST	Somers, D. M.	LARC	Eiss, N. S., Jr.	NAG 1-300	5661
49	VIRGINIA POLY INST	Slemp, W. S.	LARC	Wightman, J. P.	NAG 1-521	5667
49	VIRGINIA POLY INST	Baucom, R. M.	LARC	Herakovich, C. T.	NAG 1-673	5672
49	VIRGINIA POLY INST	Chestnutt, D.	LARC	Fuller, C. R.	NAG 1-762	5679
49	VIRGINIA POLY INST	Sobieski, J.	LARC	Drew, D. R.	NAS 1-17256	5707
49	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Hendricks, S. L.	NGT 00-050-000	5713
49	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Hyer, M. W.	NGT 00-050-119	5717
49	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Duke, J. C., Jr.	NGT 47-004-811	5723
49	XAVIER UNIV-LA	Warren, L.	HQ-U	Baker, G. W.	NGT 00-090-004	3210
49	XAVIER UNIV-LA	Warren, L.	HQ-U	Baker, G. W.	NGT 00-090-011	3211
51	ALABAMA A&M UNIV	MacElroy, R. D.	ARC	Tadros, M.	NCC 2-501	1018
51	ALABAMA A&M UNIV	Nachtwey, D. S.	JSC	Kale, P.	NAG 9-246	1012
51	ALABAMA A&M UNIV	Ruff, R. C.	MSFC	Lal, R. B.	NAS 8-36634	1017
51	ARIZONA STATE UNIV	Rummel, J. D.	HQ-EB	Blankenship, R. E.	NAGW 1395	1246
51	BAYLOR COL OF MED	Daunton, N. G.	ARC	Igarashi, M.	NAG 2-289	5097
51	BAYLOR COL OF MED	Ross, M. D.	ARC	Fermin, C. D.	NAG 2-342	5098
51	BAYLOR COL OF MED	Mandel, A. D.	ARC	Alfrey, C. P.	NAG 2-500	5099
51	BAYLOR UNIVERSITY	Halstead, T. W.	HQ-EB	Moore, R.	NAGW 734	5092
51	BAYLOR UNIVERSITY	Halstead, T. W.	HQ-EB	Moore, R.	NAGW 1041	5093
51	BOWDOIN COLLEGE	Ross, M. D.	ARC	Phillips, C. R.	NAG 2-511	3212
51	BRANDEIS UNIVERSITY	Kutyna, F. A.	JSC	Johnson, W. H.	NAG 9-293	3437
51	CAL STATE U-NRTHRDGE	Ross, M. D.	ARC	Oppenheimer, S. B.	NAG 2-499	1555
51	CAL STATE U-NRTHRDGE	Owens, F. C.	HQ-XE	Oppenheimer, S. B.	NGT 00-070-085	1560
51	CASE WESTERN RESERVE	Souza, K.	ARC	Keefe, J. R.	NAG 2-339	4481
51	CLARKSON UNIVERSITY	Oran, W.	HQ-IC	Wilcox, W. R.	NAGW 976	4127
51	COLORADO STATE UNIV	Connolly, J. P.	ARC	Phillips, R. W.	NAS 2-12824	2291
51	COLUMBIA UNIVERSITY	Ross, M. D.	ARC	Wolgemuth, D. I.	NAG 2-385	4137
51	COLUMBIA UNIVERSITY	Holton, E. M.	ARC	Doty, S. B.	NCC 2-325	4172
51	CORNELL UNIVERSITY	Halstead, T. W.	HQ-EB	Leopold, A. C.	NAGW 3	4201
51	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Bird, J. M.	NGT 00-050-294	4247
51	EAST CAROLINA UNIV	Winget, C. M.	ARC	Bruschi, C. V.	NAG 2-365	4412
51	ESTRN VA MED SCHL	Winget, C. M.	ARC	Spangenberg, D. B.	NAG 2-343	5501
51	ESTRN VA MED SCHL	Winget, C. W.	ARC	Spangenberg, D. B.	NAG 2-508	5502
51	EMORY UNIVERSITY	Schmidt, G. K.	ARC	Popovic, V.	NAS 2-10527	2688
51	EMORY UNIVERSITY	Connolly, J. P.	ARC	Merrill, A. H.	NAS 2-12829	2689
51	FLORIDA A&M UNIV	Arnaud, S. B.	ARC	Soliman, K. F.	NAG 2-411	2579

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
51	FLORIDA STATE UNIV	Rummel, J. D.	HQ-EB	Friedmann, E. I.	NSG 7337	2615
51	GEORGETOWN UNIV	Fischer, J. R.	GSFC	Corliss, J. B.	NAG 5-1066	2550
51	GEORGETOWN UNIV	Devincenzi, D. L.	HQ-EB	Corliss, J. B.	NAGW 1011	2551
51	GEORGIA STATE UNIV	Ballard, R. W.	ARC	Rumbaugh, D. M.	NAG 2-438	2751
51	HARVARD UNIVERSITY	Ballard, R. W.	ARC	Vatner, S. F.	NAG 2-451	3445
51	HARVARD UNIVERSITY	Leon, H.	ARC	Moore-ede, M. C.	NAS 2-10547	3468
51	INDIANA ST UNIV	Ross, M. D.	ARC	Cochran, S. L.	NAG 2-498	2974
51	INDIANA U-BLOOMINGTN	Souza, K. A.	ARC	Malacinski, G. M.	NAG 2-323	2975
51	JOHNS HOPKINS UNIV	Owens, F. C.	HQ-LE	Moudrianakis, E. N.	NGT 00-050-060	3268
51	KENYON COLLEGE	Halstead, T. W.	HQ-EB	Edwards, K. L.	NAGW 368	4619
51	LEHIGH UNIVERSITY	Bannett, B.	MSFC	Vanderhoff, J. W.	NAS 8-32951	4856
51	MARQUETTE UNIVERSITY	Grindeland, R. E.	ARC	Fitts, R. H.	NAG 2-212	5828
51	MASS INST OF TECH	Daunton, N. G.	ARC	Young, L. R.	NAG 2-445	3500
51	MASS INST OF TECH	Owens, F. C.	HQ-LE	Jewitt, D. C.	NGT 00-050-008	3617
51	MED COL OF WISC	Ferandin, J. A.	ARC	Riley, D. A.	NAS 2-11305	5830
51	MIAMI UNIVERSITY	Kutyna, F.	JSC	Parker, D. E.	NAS 9-17413	4622
51	MICHIGAN STATE UNIV	Winget, C. M.	ARC	Bandurski, R. S.	NAG 2-362	3692
51	MICHIGAN STATE UNIV	Halstead, T. W.	HQ-EB	Bandurski, R. S.	NAGW 97	3699
51	MICHIGAN STATE UNIV	Halstead, T.	HQ-EB	Poff, K. L.	NAGW 882	3700
51	MONTANA STATE UNIV	Sauer, R. L.	JSC	McFeters, G. A.	NAS 9-17346	3930
51	MONTANA STATE UNIV	Owens, F. C.	HQ-XE	McFeters, G. A.	NGT 00-050-217	3931
51	MT SINAI SCH OF MED	Daunton, N. G.	ARC	Cohen, B.	NAG 2-336	4268
51	NO CAR A&T STATE U	Schmidt, G. K.	ARC	Ahrens, S. T.	NCA 2-545201	4426
51	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Vans, M. E.	NAGW 297	4653
51	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Cline, M.	NAGW 625	4654
51	OHIO STATE UNIV	Owens, F. C.	HQ-LE	Evans, M. L.	NGT 36-020-800	4675
51	OREGON STATE UNIV	Halstead, T. W.	HQ-EB	Lomax, T. L.	NAGW 1253	4805
51	PA ST U-HERSHEY MED	Keil, L.	ARC	Severs, W. B.	NCC 2-127	4866
51	PENN STATE U-UNIV PK	Winget, C. M.	ARC	Hyrner, W. C.	NCC 2-370	4920
51	PRINCETON UNIVERSITY	Ross, M. D.	ARC	Farley, J.	NAG 2-397	4020
51	PRINCETON UNIVERSITY	Fogle, W.	MSFC	Saville, D. A.	NAS 8-32614	4047
51	PURDUE UNIVERSITY	Owens, F. C.	HQ-XE	Kim, K.	NGT 00-050-196	3037
51	ROCKEFELLER UNIV	Daunton, N. G.	ARC	Wilson, V. J.	NSG 2380	4308
51	ST LOUIS UNIVERSITY	Holton, E. M.	ARC	Partridge, N. C.	NAG 2-454	3877
51	SAN DIEGO STATE UNIV	Halstead, T. W.	HQ-EB	Rayle, D.	NAGW 230	1572
51	SAN DIEGO STATE UNIV	Owens, F. C.	HQ-XE	Rayle, D. L.	NGT 00-050-177	1577
51	SAN JOSE STATE UNIV	Grindeland, R. E.	ARC	Yengoyan, L. S.	NAG 2-410	1586
51	SAN JOSE STATE UNIV	Jahnke, L. L.	ARC	Holley, D. C.	NCA 2-59	1590
51	SAN JOSE STATE UNIV	Winget, C. M.	ARC	Holley, D. C.	NCA 2-203	1594
51	SAN JOSE STATE UNIV	Daunton, N. G.	ARC	Fox, R. A.	NCC 2-167	1600
51	SAN JOSE STATE UNIV	Corcoran, M. L.	ARC	Fox, R. A.	NCC 2-449	1612
51	SO ILL UNIV-CARBONDL	Winget, C. M.	ARC	Ferraro, J. S.	NAG 2-452	2840
51	STANFORD UNIVERSITY	Matson, P.	ARC	Mooney, H. A.	NCA 2-31	1678
51	STANFORD UNIVERSITY	Des Marais, D.	ARC	Briggs, W.	NCA 2-228	1699
51	STANFORD UNIVERSITY	MacElroy, R. D.	ARC	Roughgarden, J.	NCA 2-258	1703
51	STANFORD UNIVERSITY	Daunton, N. G.	ARC	Peroutka, S. J.	NCA 2-745504	1726
51	STANFORD UNIVERSITY	Averner, M. M.	HQ-EB	Vitousek, P.	NAGW 1068	1659
51	STATE U NY-BINGHAMTN	Winget, C. M.	ARC	Ferraro, J. S.	NAG 2-361	4332
51	STATE U NY-STONY BRK	Knott, W. M.	KSC	Krikorian, A. D.	NAS10-11395	4366
51	STATE U NY-STONY BRK	Halstead, T. W.	HQ-EB	Krikorian, A. D.	NSG 7270	4372
51	TEXAS A&M UNIVERSITY	Chullen, C.	JSC	Nicks, O. W.	NAG 9-161	5174
51	TEXAS A&M UNIVERSITY	Kutyna, F. A.	JSC	Lessard, C. S.	NAG 9-303	5187
51	TEXAS SOUTHERN UNIV	Henninger, D. L.	JSC	Wilson, R. F.	NAG 9-174	5217
51	TULANE UNIVERSITY	MacElroy, R. D.	ARC	Johnson, E. J.	NCA 2-800501	3203
51	TUSKEGEE INSTITUTE	Philpott, D. E.	ARC	Sapp, W. J.	NCC 2-455	1060
51	UNIV NEB-MED CNTR	Ross, M. D.	ARC	Jones, T. A.	NAG 2-430	3961
51	UNIV TENNESSEE-CHAT	Mandel, A. D.	ARC	Lange, R. D.	NAG 2-494	5051
51	U OF MD ENVTEST STDS	Owens, F. C.	HQ-LE	Fisher, T. R.	NGT 21-002-822	3419
51	UNIV ALA-BIRMINGHAM	Herrmann, F.	MSFC	Rosenblum, W. M.	NAG 8-600	1064
51	UNIV ALA-BIRMINGHAM	Herren, B.	MSFC	Bugg, C. E.	NAS 8-36611	1071

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
51	UNIV ALA-BIRMINGHAM	Oran, W. A.	HQ-IC	Brigg, C. E.	NAGW 813	1069
51	UNIV ALA-HUNTSVILLE	Pierson, D.	JSC	Kilgore, M. V.	NAS 9-17973	1167
51	UNIV ALA-HUNTSVILLE	Herrmann, F.	MSFC	Choudry, A.	NAG 8-599	1111
51	UNIV OF ARIZONA	Souza, K. A.	ARC	Gruener, R. P.	NAG 2-326	1272
51	UNIV OF ARIZONA	Winget, C. M.	ARC	Tischler, M. E.	NAG 2-384	1273
51	UNIV OF ARIZONA	Halstead, T. W.	HQ-EB	Gruener, R. P.	NAGW 1325	1366
51	UNIV OF ARIZONA	Schmoll, K. S.	HQ-EN	Bier, M.	NAGW 693	1329
51	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Levine, M. L.	NGT 00-050-270	1411
51	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Tischler, M. E.	NGT 00-050-019	1400
51	U ARKANSAS-PINE BLUF	Daunton, N. G.	ARC	Walker, C. A.	NAG 2-427	1450
51	UNIV CALIF-BERKELEY	Ross, M. D.	ARC	Lewis, E. R.	NAG 2-448	1799
51	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Tinoco, I.	NCA 2-108	1856
51	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Packer, L.	NCA 2-140	1859
51	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Packer, L.	NCA 2-231	1863
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-EB	Feldman, L. J.	NAGW 239	1823
51	UNIV CALIF-BERKELEY	Fogleman, S. W.	HQ-EB	Buchanan, B. B.	NAGW 427	1825
51	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Feldman, L. J.	NGT 00-050-C17	1889
51	UNIV CALIF-DAVIS	Holton, E. M.	ARC	Horowitz, J. M.	NAG 2-341	1911
51	UNIV CALIF-DAVIS	Holton, E. M.	ARC	Fuller, C. A.	NAG 2-349	1912
51	UNIV CALIF-DAVIS	Donnelly, N. J.	ARC	Fuller, C.	NAS 2-12334	1928
51	UNIV CALIF-DAVIS	MacElroy, R. D.	ARC	Huffaker, R. C.	NCC 2-392	1940
51	UNIV CALIF-DAVIS	McKay, C. P.	ARC	Harrison, A. A.	NCC 2-469	1941
51	UNIV CALIF-DAVIS	Averner, M. M.	HQ-EB	Washino, R. K.	NAGW 1096	1925
51	UNIV CALIF-DAVIS	Owens, F. C.	HQ-XE	Fuller, C. A.	NGT 00-050-195	1942
51	UNIV CALIF-DAVIS	Owens, F. C.	HQ-LB	Bernauer, E.	NGT 05-004-801	1944
51	UNIV CALIF-IRVINE	Ross, M. D.	ARC	Blanks, R. H.	NAG 2-399	1948
51	UNIV CALIF-IRVINE	Ballard, R. W.	ARC	Baldwin, K. M.	NAS 2-10522	1955
51	UNIV CALIF-IRVINE	Rummel, J. D.	HQ-EB	Lanyi, T. K.	NAGW 212	1952
51	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Roy, R. R.	NCA 2-268	2046
51	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Vailas, A. C.	NCA 2-390501	2048
51	UNIV CALIF-L ANGELES	Ballard, R. W.	ARC	Edgerton, V. R.	NCC 2-535	2050
51	UNIV CALIF-SAN DIEGO	White, R. J.	HQ-EB	West, J. B.	NAGW 897	2118
51	UNIV CALIF-SAN DIEGO	Rummel, J. D.	HQ-EB	Arrhenius, G.	NAGW 1031	2123
51	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Ganong, W. F.	NAG 2-434	2165
51	UNIV CALIF-SAN FRAN	Connolly, J. P.	ARC	Cann, C. E.	NAS 2-12846	2169
51	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Bikle, D. D.	NCC 2-328	2174
51	UNIV CALIF-SAN FRAN	Danelis, J. V.	ARC	Dallman, M. F.	NCC 2-354	2175
51	UNIV CALIF-SAN FRAN	Corcoran, M. L.	ARC	Ralston, H. J.	NCC 2-491	2177
51	UNIV CALIF-SAN FRAN	Halstead, T. W.	HQ-EB	Fulford, M. H.	NAGW 1244	2168
51	UNIV CALIF-SAN FRAN	Owens, F. C.	HQ-LE	Bikle, D.	NGT 05-029-801	2178
51	UNIV OF CHICAGO	Daunton, N. G.	ARC	Goldberg, J. M.	NAG 2-148	2842
51	UNIV OF CHICAGO	Des Marais, D. J.	ARC	Raup, D. M.	NAG 2-237	2843
51	UNIV OF CHICAGO	Soffen, G. A.	HQ-EB	Fernandez, H.	NSG 7303	2908
51	UNIV OF DELAWARE	Averner, M. M.	HQ-EB	Klenas, V.	NAGW 374	2487
51	UNIV OF HAWAII-MANOA	Devincenzi, D. L.	HQ-EB	Folsome, C. E.	NGR 12-001-109	2808
51	UNIV HOUSTON-HOUSTON	Rummel, J. D.	HQ-EB	Fox, G. E.	NSG 7440	5271
51	UNIV HOUSTON-HOUSTON	Oran, W. A.	HQ-IC	Chu, C. W.	NAGW 977	5250
51	UNIV ILLINOIS-CHICGO	Des Marais, D. J.	ARC	Sepkoski, J. J., Jr.	NAG 2-282	2910
51	UNIV OF LOUISVILLE	Grindeland, R. E.	ARC	Musacchia, X. J.	NAG 2-386	3172
51	UNIV OF LOUISVILLE	Halstead, T. W.	HQ-EB	Musacchia, X. J.	NAGW 70	3175
51	U OF MED & DEN-CAMDN	Owens, F. C.	HQ-XE	Stein, T. P.	NGT 00-070-033	4067
51	UNIV MICH-ANN ARBOR	Daunton, N. G.	ARC	Ross, M. D.	NAG 2-333	3718
51	UNIV MICH-ANN ARBOR	Oseroff, H.	GSFC	Olsen, C. E.	NAS 5-28755	3774
51	UNIV MICH-ANN ARBOR	Halstead, T. W.	HQ-EB	Kaufman, P. B.	NAGW 34	3750
51	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LE	Kaufman, P. B.	NGT 00-070-004	3800
51	UNIV NEBRASKA-LINCLN	Halstead, T. W.	HQ-EB	Jones, T. A.	NAGW 1275	3954
51	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Moore, B.	NCC 2-27	4003
51	UNIV NEW HAMP-DURHAM	Averner, M. M.	HQ-EB	Moore, B.	NAGW 714	3995
51	UNIV N CAR-CHPL HILL	Arnaud, S. B.	ARC	Dillaman, R. M.	NAG 2-391	4464
51	UNIV OF PACIFIC	Holton, E. M.	ARC	Roberts, W. E.	NAG 2-322	2229

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
51	UNIV OF PACIFIC	Holton, E. M.	ARC	Roberts, W. E.	NCC 2-224	2231
51	UNIV OF PITTSBURGH	Daunton, N. G.	ARC	Tomko, D. L.	NCC 2-393	4961
51	U PUERTO RICO-MAYAGZ	Owens, F. C.	HQ-LE	Gonzalez, J. G.	NGT 51-001-800	5927
51	U PUERTO RICO-RIO PI	Owens, F. C.	HQ-XE	Fetcher, N.	NGT 00-050-256	5929
51	UNIV SAN FRANCISCO	Nachtwey, D. S.	JSC	Benton, E. V.	NAS 9-17389	2237
51	UNIV OF SANTA CLARA	Hochstein, L. I.	ARC	Tomlinson, G. A.	NCA 2-50	2240
51	UNIV OF SANTA CLARA	MacElroy, R. D.	ARC	Klein, H. P.	NCA 2-161	2242
51	UNIV OF SANTA CLARA	Jahnke, L. L.	ARC	Klein, H. P.	NCA 2-226	2245
51	UNIV OF SANTA CLARA	Hochstein, L. I.	ARC	Tomlinson, G. A.	NCA 2-250	2246
51	UNIV OF SANTA CLARA	Grindeland, R.	ARC	Fast, T.	NCC 2-406	2251
51	UNIV OF SO FLORIDA	Rummel, J. D.	HQ-EB	Briggs, J. C.	NAGW 1173	2682
51	UNIV OF SOUTHERN CAL	Owens, F. C.	HQ-LE	Kiefer, D. A.	NGT 00-050-091	2271
51	U OF TEN CTR HLTH&SC	Schatte, C. L.	ARC	Lange, R. D.	NAS 2-11586	5077
51	UNIV TEXAS-AUSTIN	Halstead, T. W.	HQ-EB	Roux, S. J.	NSG 7480	5365
51	U TEX MED BRANCH-GAL	Daunton, N. G.	ARC	Perachio, A. A.	NAG 2-26	5401
51	U TEX MED BRANCH-GAL	Tomko, D. L.	ARC	Correia, M. J.	NAG 2-186	5402
51	U TEX MED BRANCH-GAL	Daunton, N. G.	ARC	Gallagher, J. P.	NAG 2-260	5403
51	U TEX MED BRANCH-GAL	Daunton, N. G.	ARC	Correia, M. H.	NAG 2-293	5404
51	U TEX MED BRANCH-GAL	Connolly, J. P.	ARC	Correia, M. J.	NAG 2-446	5405
51	U TEX MED BRANCH-GAL	Owens, F. C.	HQ-XE	Perachio, A. A.	NGT 00-050-165	5410
51	U TEX HLTH SC CTR-HU	Grindeland, R. E.	ARC	Booth, F. W.	NAG 2-239	5418
51	U TEX HLTH SC CTR-HU	Daligcon, B. C.	ARC	Duke, P. J.	NAG 2-332	5419
51	U TEX HLTH SC CTR-HU	Winget, C. M.	ARC	Duke, J. C.	NCC 2-423	5425
51	U TEX HLTH SC CTR-HU	Morrison, D. R.	JSC	Tom, B. H.	NAS 9-17403	5423
51	U TEX HLTH SC CTR-SA	Ross, M. D.	ARC	Wiederhold, M. L.	NAG 2-442	5426
51	UNIV OF UTAH	Arnaud, S. B.	ARC	Jee, W. S.	NAG 2-435	5438
51	UNIV OF VIRGINIA	Ross, M. D.	ARC	Chochran, S. L.	NAG 2-456	5610
51	UNIV OF VIRGINIA	Rummel, J. D.	HQ-EB	Kretsinger, R. H.	NAGW 1233	5630
51	UNIV OF WASHINGTON	Averner, M. M.	HQ-EB	Richey, J. E.	NAGW 1066	5773
51	UNIV OF WASHINGTON	Halstead, T. W.	HQ-EB	Cleland, R. E.	NAGW 1394	5786
51	UNIV WISC-MADISON	Winget, C. M.	ARC	Schatten, G.	NAG 2-459	5837
51	UNIV WISC-MADISON	MacElroy, R. D.	ARC	Tibbitts, T. W.	NCC 2-301	5896
51	UNIV WISC-MADISON	Oran, W.	HQ-IC	Bollinger, J. G.	NAGW 975	5876
51	UNIV WISC-MADISON	Owens, F. C.	HQ-XE	Becker, W.	NGT 00-050-267	5902
51	UNIV WISC-MILWAUKEE	Averner, M. M.	HQ-EB	Nealson, K. H.	NAGW 1063	5909
51	UTAH STATE UNIV	MacElroy, R. D.	ARC	Salisbury, F. B.	NCC 2-139	5465
51	VIRGINIA POLY INST	McKay, C. P.	ARC	Simmons, G. M.	NCA 2-316	5710
51	VIRGINIA POLY INST	Halstead, T. W.	HQ-EB	Lewis, N. G.	NAGW 1277	5706
51	WAKE FOREST UNIV	Ferandin, J.	ARC	Hutchins, P. M.	NAS 2-10523	4474
51	WAKE FOREST UNIV	Owens, F. C.	HQ-XE	Hutchins, P.	NGT 00-070-081	4476
51	WAYNE STATE UNIV	Ross, M. D.	ARC	Kerr, T. P.	NAG 2-404	3808
51	WILLIAMS COLLEGE	Halstead, T. W.	HQ-EB	Slocum, R. D.	NAGW 1382	3680
51	WILLIAMS COLLEGE	Halstead, T. W.	HQ-ER	Sloam, R. D.	NAGW 1049	3679
51	WOODSHOLE OCEAN INST	Averner, M.	HQ-EB	Dacey, J. H.	NAGW 606	3682
51	WRIGHT STATE UNIV	Daunton, N. G.	ARC	Crampton, G. H.	NCC 2-229	4779
51	WRIGHT STATE UNIV	Boyce, V.	JSC	Hamilton, G. C.	NAG 9-263	4778
51	YALE UNIVERSITY	Averner, M. M.	HQ-EB	Galston, A. W.	NAGW 1402	2469
51	YALE UNIVERSITY	Halstead, T. W.	HQ-EB	Galston, A. W.	NSG 7290	2477
54	COLORADO STATE UNIV	Nachtwey, D. S.	JSC	Lett, J.	NAG 9-10	2286
54	HUNTER COLLEGE	Peterson, D. L.	ARC	Band, L. E.	NCA 2-143	4264
54	MASS INST OF TECH	Yates, I. C.	MSFC	Gatos, H. C.	NAS 8-36604	3600
54	NO CAROLINA STATE U	Peterson, D. L.	ARC	Hitchner, L. E.	NCA 2-247	4448
54	NORTHERN ARIZONA U	Matson, P. A.	ARC	Bowman, A.	NCA 2-141	1266
54	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Sack, F. D.	NAGW 780	4656
54	PRAIRIE VIEW A&M U	Peterson, D. L.	ARC	Brams, E. A.	NAG 2-400	5106
54	SAN JOSE STATE UNIV	Matson, P.	ARC	Savage, W.	NCA 2-145	1592
54	GEORGIA INST OF TECH	Fraser, R. S.	GSFC	Patterson, E. M.	NAG 5-592	2717
54	STANFORD UNIVERSITY	Peterson, D. L.	ARC	Vitousek, P.	NCA 2-30	1677
54	STANFORD UNIVERSITY	Peterson, D. L.	ARC	Vitousek, P. M.	NCA 2-239	1701
54	STATE UNIV NY-ALBANY	Sauer, R.	JSC	Janauer, G. E.	NAS 9-16604	4325

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
54	TUSKEGEE INSTITUTE	Philpott, D. E.	ARC	Sapp, W. J.	NCC 2-12	1059
54	UNIV CALIF-DAVIS	Winget, C. M.	ARC	Fuller, C. A.	NAG 2-467	1916
54	UNIV CALIF-DAVIS	Sebesta, P.	ARC	Washino, R.	NCA 2-153	1932
54	UNIV CALIF-DAVIS	Lawless, J. G.	ARC	Ustin, S. L.	NCA 2-229	1935
54	UNIV OF GEORGIA	Luvall, J. C.	NSTL	Welch, R. A.	NAG13-10	2760
54	UNIV OF MAINE-ORONO	Averner, M. M.	HQ-EB	King, G. M.	NAGW 1428	3215
54	UNIV OF MONTANA	Peterson, D. L.	ARC	Running, S. W.	NCA 2-138	3935
54	UNIV OF MONTANA	Peterson, D. L.	ARC	Running, S. W.	NCA 2-252	3936
54	UNIV OF MONTANA	Owens, F. C.	HQ-LE	Running, S. W.	NGT 27-003-800	3937
54	UNIV NEW HAMP-DURHAM	Peterson, D. L.	ARC	Aber, J. D.	NCA 2-238	4002
54	UNIV WISC-MADISON	Tri, T. O.	JSC	Bach-y-rita, P.	NAG 9-171	5866
54	UNIV WISC-MILWAUKEE	Wickland, D. E.	HQ-EE	Nealson, K. H.	NAGW 1047	5908
55	AUBURN UNIV-AUBURN	Carter, G. A.	NSTL	Mitchell, R. J.	NAG13-7	1029
55	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Leopold, A. C.	NGT 00-050-197	4242
55	GEORGE WASHINGTON U	Oseroff, H.	GSFC	Lang, R. H.	NAG 5-265	2531
55	JOHNS HOPKINS UNIV	Owens, F. C.	HQ-LE	Paor, D. D.	NGT 00-050-054	3267
55	MASS INST OF TECH	Oseroff, H.	GSFC	Oliver, D. O.	NAG 5-270	3519
55	NO CAROLINA STATE U	MacElroy, R.	ARC	Raper, C. D., Jr.	NCC 2-101	4460
55	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Raghavan, V.	NAGW 901	4657
55	PURDUE UNIVERSITY	MacElroy, R. D.	ARC	Mitchell, C. A.	NCC 2-100	3027
55	PURDUE UNIVERSITY	Knott, W. M.	KSC	Mitchell, C. A.	NAG10-18	3022
55	TEXAS A&M UNIVERSITY	Pitts, D.	JSC	Fung, A.	NAG 9-115	5167
55	TEXAS A&M UNIVERSITY	Pitts, D. E.	JSC	Heilman, J. L.	NAG 9-121	5168
55	UNIV CALIF-DAVIS	MacElroy, R. D.	ARC	Huffaker, R. C.	NCC 2-99	1936
55	UNIV CALIF-L ANGELES	Knott, W. M.	KSC	Berry, W. L.	NAG10-52	2031
55	UNIV HOUSTON-HOUSTON	Henninger, D. L.	JSC	Venketeswaran, S.	NAG 9-214	5241
55	UNIV OF KANSAS	Oseroff, H.	GSFC	Moore, R. K.	NAG 5-271	3137
55	UNIV MICH-ANN ARBOR	Oseroff, H.	GSFC	Ulaby, F. T.	NAG 5-480	3735
55	UNIV NEBRASKA-LINCLN	Kimes, D. S.	GSFC	Norman, J. M.	NAG 5-277	3942
55	UNIV TEXAS-ARLINGTON	Oseroff, H.	GSFC	Fung, A. K.	NAG 5-486	5276
55	WASHINGTON ST UNIV	Knott, W. M.	KSC	Poovaiah, B. W.	NAG10-32	5814
56	BAYLOR COL OF MED	Schneider, V.	JSC	Leblanc, A.	NAG 9-130	5100
56	BAYLOR COL OF MED	Huntoon, C. L.	JSC	Alfrey, C.	NAS 9-14662	5101
56	BAYLOR COL OF MED	Huntoon, C.	JSC	Suki, W.	NAS 9-17589	5102
56	BAYLOR COL OF MED	Owens, F. C.	HQ-XE	Atassi, M. Z.	NGT 00-050-225	5103
56	BRANDEIS UNIVERSITY	Kutyna, F. A.	JSC	Lackner, J. R.	NAG 9-295	3438
56	CASE WESTERN RESERVE	Friedman, D. S.	GSFC	Ko, W. H.	NAS 5-29423	4535
56	CASE WESTERN RESERVE	Harris, J. W.	JSC	Leigh, R. J.	NAS 9-17439	4536
56	COLUMBIA UNIVERSITY	Arnaud, S. B.	ARC	Pawluk, R. J.	NCA 2-172102	4171
56	COLUMBIA UNIVERSITY	Nachtwey, D. S.	JSC	Worgul, D.	NAG 9-256	4159
56	CORNELL UNIV-MED CTR	Graeber, R. C.	ARC	Moline, M. L.	NCC 2-253	4259
56	DUKE UNIVERSITY	Horrigan, D. J.	JSC	Vann, R. D.	NAG 9-134	4402
56	HARVARD UNIVERSITY	Cintron, N. M.	JSC	Hollenberg, N. K.	NAG 9-17	3457
56	HARVARD UNIVERSITY	Cintron, N. M.	JSC	Ede, M. C.	NAG 9-264	3458
56	LA STATE U-SHREVEPT	Kutyna, F. A.	JSC	Wood, C. D.	NAG 9-167	3192
56	MASS INST OF TECH	Cintron, N. M.	JSC	Wurtman, R. J.	NAG 9-144	3557
56	MASS INST OF TECH	Kutyna, F. A.	JSC	Oman, C. M.	NAG 9-244	3558
56	MASS INST OF TECH	White, R. J.	HQ-EB	Cohen, R. J.	NAGW 988	3574
56	MED COL OF WISC	Grindeland, R. E.	ARC	Riley, D. A.	NAG 2-460	5829
56	PENN STATE U-UNIV PK	Grindeland, R. E.	ARC	Hymer, W. C.	NAG 2-481	4873
56	PENN STATE U-UNIV PK	Kutyna, F. A.	JSC	Koch, K.	NAG 9-118	4897
56	PENN STATE U-UNIV PK	Morrison, D.	JSC	Hymer, W.	NAS 9-17416	4910
56	RICE UNIVERSITY	Wolf, D.	JSC	McIntire, I. V.	NAG 9-207	5118
56	STANFORD UNIVERSITY	Arnaud, S. B.	ARC	Steele, C. R.	NAG 2-130	1628
56	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Hargens, A.	NGT 00-050-350	1778
56	STATE UNIV NY-BUFFAL	Owens, F. C.	HQ-XE	Farhi, L. E.	NGT 00-050-202	4348
56	ST U NY HCS-BROOKLYN	Grindeland, R. E.	ARC	Etlinger, J. D.	NAG 2-531	4376
56	THOMAS JEFFERSON U	Logan, J. S.	JSC	Herbison, G. J.	NAG 9-133	4936
56	TULANE UNIVERSITY	Mehler, W. R.	ARC	Brizzee, K. R.	NAG 2-101	3201
56	TULANE UNIVERSITY	Owens, F. C.	HQ-XE	Walker, B. R.	NGT 00-050-176	3205

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
56	UNIV CALIF-DAVIS	Arnaud, S. B.	ARC	Martin, R. B.	NAG 2-455	1915
56	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Edgerton, V. R.	NAG 2-450	1977
56	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Vailas, A. C.	NAG 2-479	1980
56	UNIV CALIF-L ANGELES	Kutyna, F. A.	JSC	Markham, C. H.	NAG 9-179	2006
56	UNIV CALIF-SAN DIEGO	Hargens, A. R.	ARC	Sartoris, D. J.	NCC 2-556	2147
56	UNIV CALIF-SAN DIEGO	Charles, J. B.	JSC	West, J. B.	NAG 9-271	2109
56	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Cann, C. E.	NCC 2-178	2172
56	UNIV OF FLORIDA	Koller, A.	KSC	Grams, R. R.	NAG10-41	2641
56	UNIV OF FLORIDA	Long, I. D.	KSC	Melker, R. J.	NAS10-11495	2648
56	UNIV HOUSTON-HOUSTON	Stewart, D.	JSC	Brown, J. H.	NAG 9-225	5245
56	UNIV HOUSTON-HOUSTON	Schneider, V. S.	JSC	Nerem, R. M.	NCC 9-12	5259
56	UNIV OF KENTUCKY	Charles, J. B.	JSC	Knapp, C. F.	NAG 9-298	3167
56	UNIV OF LOUISVILLE	Taylor, G. R.	JSC	Sonnenfeld, G.	NAG 9-181	3173
56	UNIV OF LOUISVILLE	Taylor, G. R.	JSC	Sonnenfeld, G.	NAG 9-234	3174
56	UNIV MARYLAND-BALT	Reynolds, M. A.	JSC	Siegel, J. H.	NAG 9-163	3284
56	UNIV MARYLAND-BALT	Kutyna, F. A.	JSC	Drusano, G. L.	NAG 9-249	3285
56	UNIV OF MASS-AMHERST	Kutyna, F. A.	JSC	Andres, R. O.	NAG 9-291	3656
56	U OF MED & DEN-CAMDN	Newkirk, K.	JSC	Stein, P.	NAS 9-17276	4066
56	UNIV N CAR-CHPL HILL	Arnaud, S. B.	ARC	Mechanic, G.	NAG 2-181	4463
56	UNIV OF PENNSYLVANIA	Waligora, J. M.	JSC	Lambertson, C. J.	NAG 9-154	4943
56	UNIV TEXAS-AUSTIN	Savely, R. T.	JSC	Himmelblau, D. M.	NAG 9-287	5317
56	UNIV TEXAS-DALLAS	Charles, J. B.	JSC	Buckey, J. C.	NAG 9-297	5375
56	U TEX MED BRANCH-GAL	Taylor, G. R.	JSC	Meehan, R. T.	NAG 9-170	5406
56	U TEX MED BRANCH-GAL	Cintron, N. M.	JSC	Stuart, C. A.	NAG 9-172	5407
56	U TEX MED BRANCH-GAL	Sams, C. F.	JSC	Meehan, R. T.	NAG 9-306	5408
56	U TEX MED BRANCH-GAL	Owens, F. C.	HQ-LE	Perachio, A.	NGT 44-008-801	5411
56	U TEX HLTH SC CTR-DA	Cintron, N. M.	JSC	Pak, C. Y.	NAG 9-152	5412
56	U TEX HLTH SC CTR-DA	Charles, J. B.	JSC	Buckey, J. C.	NAG 9-267	5413
56	U TEX HLTH SC CTR-HU	Harris, B.	JSC	Schneider, V.	NAG 9-193	5420
56	U TEX HLTH SC CTR-HU	Waligora, J. M.	JSC	Butler, B. D.	NAG 9-215	5421
56	U TEX HLTH SC CTR-HU	Johnson, P.	JSC	Schneider, V. S.	NAS 9-16688	5422
56	U TEX HLTH SC CTR-HU	Logan, J.	JSC	Houtchens, B.	NAS 9-17522	5424
56	U TEX HLTH SC CTR-SA	Schenider, V. S.	JSC	Holt, G. R.	NAG 9-250	5427
56	U TEX HLTH SC CTR-SA	Leach, C.	JSC	Lifschitz, M.	NAS 9-16366	5428
56	UNIV OF UTAH	Reynolds, M. A.	JSC	Westenskow, D.	NAS 9-17345	5448
56	UNIV OF UTAH	Logan, J. S.	JSC	Gardner, R.	NAS 9-17425	5449
56	VANDERBILT UNIVERSTY	Owens, F. C.	HQ-LE	Stubbs, G.	NGT 00-050-081	5087
56	VIRGINIA COMNWLTH U	Samos, J.	LARC	Patterson, J. L.	NAG 1-695	5653
56	VIRGINIA COMNWLTH U	Yost, W. T.	LARC	Marmarou, A.	NCC 1-87	5656
56	VIRGINIA COMNWLTH U	Sulzman, F.	HQ-EB	Eckberg, D. L.	NAGW 1178	5654
56	WASHINGTON ST UNIV	Sauer, R. L.	JSC	Bull, R. J.	NAG 9-226	5812
56	WASHINGTON UNIVERSTY	Tomko, D.	ARC	Paige, G.	NCA 2-222	3910
59	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Kale, R.	NAG 8-97	1010
59	BRANDEIS UNIVERSITY	Kutyna, F.	JSC	Lackner, J. B.	NAS 9-15147	3439
59	FLORIDA A&M UNIV	Hamilton, D. A.	JSC	Casey, J.	NSG 2183	2587
59	FLORIDA A&M UNIV	Warren, L. S.	HQ-U	Fannin, L. D.	NGT 10-040-900	2586
59	GEORGE WASHINGTON U	Halstead, T. W.	HQ-EB	Jones, E.	NASW 3165	2539
59	GEORGE WASHINGTON U	Halstead, T.	HQ-EB	Holden, C. D.	NASW 4324	2541
59	MASS INST OF TECH	Billingham, J.	ARC	Coreen, R. I.	NAG 2-327	3498
59	MASS INST OF TECH	MacElroy, R. D.	ARC	Karel, M.	NCC 2-231	3607
59	MASS INST OF TECH	Harris, C. D.	JSC	Young, L. R.	NAS 9-15343	3602
59	MASS INST OF TECH	Harris, C. D.	JSC	Young, L. R.	NAS 9-16523	3603
59	MISSISSIPPI STATE U	Morrison, D.	JSC	Rundell, R.	NAS 9-17319	3867
59	NEW YORK UNIVERSITY	MacElroy, R. D.	ARC	Volk, T.	NCA 2-101	4279
59	OREGON HLTH SCNS U	Gardner, L. B.	MSFC	Brooks, D. E.	NAS 8-35333	4794
59	PENN STATE U-UNIV PK	Morrison, D.	JSC	Todd, P.	NAS 9-17431	4911
59	SAN FRAN STATE UNIV	Carle, G. C.	ARC	Banin, A.	NCC 2-352	1584
59	SAN JOSE STATE UNIV	Carle, G. C.	ARC	Ling, A. C.	NCC 2-345	1607
59	STATE UNIV NY-ALBANY	Carle, G. C.	ARC	Scattergood, T. W.	NCC 2-395	4328
59	STATE UNIV NY-BUFFAL	Lafferty, P.	JSC	Farhi, L.	NAS 9-16042	4345

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
59	ST U NY HCS-BROOKLYN	Grindeland, R. E.	ARC	Etlinger, J. D.	NAG 2-162	4375
59	TEXAS A&M UNIVERSITY	Cullingford, H. S.	JSC	Wolfe, J. C.	NAG 9-253	5180
59	TEXAS A&M UNIVERSITY	Juday, R.	JSC	Griswold, N.	NAS 9-17320	5199
59	TEXAS TECH UNIV	Holben, B.	GSFC	Dregne, H. E.	NAG 5-514	5221
59	UNIV ALA-HUNTSVILLE	Hueter, U.	MSFC	Crump, W. J.	NAG 8-698	1122
59	UNIV ALA-HUNTSVILLE	Gardner, L. B.	MSFC	Harris, J. M.	NAS 8-35362	1146
59	UNIV OF ARIZONA	Hargers, A. R.	ARC	Tipton, C. M.	NAG 2-392	1274
59	UNIV OF ARIZONA	Newkirk, K.	JSC	Criswell, B. S.	NAS 9-16838	1384
59	UNIV OF ARIZONA	Jex, D.	MSFC	Bier, M.	NAS 8-32950	1381
59	UNIV CALIF-IRVINE	Seitz, W. W.	JSC	Petrofsky, J. S.	NAS 9-17767	1957
59	UNIV CALIF-SAN DIEGO	Davis, C.	JSC	Young, W.	NAS 9-16037	2143
59	UNIV CALIF-SAN DIEGO	Brinton, H. C.	HQ-EL	McFadden, L. A.	NAGW 1274	2132
59	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Ramsay, D. J.	NCC 2-194	2173
59	UNIV CALIF-SAN FRAN	Arnaud, S.	ARC	Cann, C. E.	NCC 2-363	2176
59	UNIV CALIF-SAN FRAN	Schneider, V. S.	JSC	Genant, H. K.	NAG 9-157	2166
59	UNIV CALIF-SAN FRAN	Newkirk, K. E.	JSC	Arnaud, C. D.	NAS 9-16227	2170
59	UNIV OF CHICAGO	Browne, I. D.	JSC	Smith, J. V.	NAG 9-106	2861
59	UNIV COLORADO-BOLDR	Oran, W. A.	HQ-IC	Luttges, M.	NAGW 1197	2382
59	UNIV OF GEORGIA	Tucker, J.	GSFC	Box, E. O.	NAG 5-516	2756
59	UNIV HOUSTON-HOUSTON	Winget, C. M.	ARC	Cowles, J. R.	NAS 2-11165	5251
59	UNIV OF MASS-AMHERST	Rummel, J. D.	HQ-EB	Irvine, W. M.	NAGW 1353	3664
59	UNIV OF PENNSYLVANIA	Waligora, J. M.	JSC	Lambertsen, C. J.	NAS 9-17238	4947
59	U TEX HLTH SC CTR-DA	Young, W.	JSC	Blomquist, C. G.	NAS 9-16044	5414
59	UNIV OF WYOMING	Matson, P. A.	ARC	Reiners, W. A.	NAG 2-355	5913
59	VIRGINIA COMNWLTH U	Young, W. J.	JSC	Exkberg, D. L.	NAS 9-16046	5655
59	WRIGHT STATE UNIV	Evans, F. D.	HQ-EB	Mohler, S.	NGT 36-024-790	4780
61	JOHNS HOPKINS UNIV	Johnston, J. C.	ARC	Yantis, S.	NCA 2-171	3264
61	UNIV CALIF-SAN FRAN	Kirk, P. J.	ARC	Kamiya, J.	NCC 2-115	2171
61	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-XE	Gorham, E.	NGT 00-050-258	3848
62	HARVARD UNIVERSITY	Foushee, H. C.	ARC	Hackman, J. R.	NCC 2-457	3470
62	UNIV OF MIAMI	Foushee, H. C.	ARC	Wiener, E. L.	NCC 2-524	2672
62	UNIV TEXAS-AUSTIN	Foushee, H. C.	ARC	Helmreich, R. L.	NCC 2-286	5345
69	BRANDEIS UNIVERSITY	Owens, F. C.	HQ-XE	Lackner, J. R.	NGT 00-050-306	3441
69	CAL STATE U-HAYWARD	Cohen, M. M.	ARC	Stoper, A. E.	NCC 2-318	1547
69	CAL STATE U-HAYWARD	Cohen, M. M.	ARC	Stoper, A. E.	NCC 2-529	1548
69	CORNELL UNIVERSITY	Rosendhal, J. D.	HQ-E	Galanter, E.	NAGW 860	4211
69	MASS INST OF TECH	Owens, F. C.	HQ-LE	Grimson, E.	NGT 22-009-906	3635
69	NEW MEX ST U-LAS CR	Remington, R.	ARC	Papp, K. R.	NAG 2-453	4073
69	NO CAR A&T STATE U	Billings, C. E.	ARC	Chen, C. S.	NCA 2-23	4425
69	OHIO STATE UNIV	Hartzell, E. J.	ARC	Miller, R. A.	NAG 2-195	4628
69	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Stoughton, J. W.	NGT 00-070-059	5590
69	OLD DOMINION UNIV	Owens, F. C.	HQ-LE	Coates, G. D.	NGT 00-050-120	5585
69	PENN COL OPTOMETRY	Fisher, S.	ARC	Whittaker, S.	NCA 2-202	4865
69	PURDUE UNIVERSITY	Hart, S. G.	ARC	Kantowitz, B.	NCC 2-349	3028
69	SAN JOSE STATE UNIV	Shafto, M. G.	ARC	Jordan, K.	NCC 2-327	1606
69	GEORGIA INST OF TECH	Palmer, E. A.	ARC	Rouse, W. B.	NAG 2-123	2706
69	STANFORD UNIVERSITY	Ahumada, A. J.	ARC	Wandell, B. A.	NCC 2-307	1739
69	SYRACUSE UNIVERSITY	Watson, A. B.	ARC	Pelli, D. G.	NCA 2-232	4386
69	UNIV CALIF-BERKELEY	Bucher, N. M.	ARC	Hardyck, C. D.	NAG 2-338	1795
69	UNIV CALIF-BERKELEY	Bucher, N. M.	ARC	Meredith, W.	NCA 2-280	1870
69	UNIV CALIF-DAVIS	Clearwater, Y. A.	ARC	Coss, R. G.	NAG 2-428	1913
69	UNIV CALIF-DAVIS	Clearwater, Y. A.	ARC	Harrison, A. A.	NAG 2-431	1914
69	UNIV CALIF-DAVIS	Owens, F. C.	HQ-XE	Coss, R. G.	NGT 00-070-018	1943
69	UNIV CALIF-IRVINE	Clearwater, Y.	ARC	Evans, G.	NAG 2-387	1947
69	UNIV CALIF-SAN DIEGO	Johnston, J. C.	ARC	Pashler, H.	NCA 2-225	2145
69	UNIV CALIF-S CRUZ	Watson, A.	ARC	Hitchner, L. E.	NCA 2-248	2216
69	UNIV ILLINOIS-URBANA	Hart, S. G.	ARC	Wickens, C. D.	NAG 2-308	2927
69	UNIV ILLINOIS-URBANA	Hart, S.	ARC	Kramer, A. F.	NAG 2-369	2928
69	UNIV ILLINOIS-URBANA	Hart, S. G.	ARC	Donchin, E.	NAG 2-466	2929
69	UNIV ILLINOIS-URBANA	Hart, S. G.	ARC	Donchin, E.	NCC 2-380	2957

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
69	UNIV OF LOUISVILLE	Owens, F. C.	HQ-LE	Fell, R. D.	NGT 00-050-021	3176
69	UNIV OF MIAMI	Palmer, E.	ARC	Wiener, E.	NCC 2-377	2671
69	UNIV MICH-ANN ARBOR	Harrison, R. L.	ARC	Clipson, C. W.	NAG 2-440	3720
69	UNIV OF PENNSYLVANIA	Hartzell, E. J.	ARC	Badler, N.	NAG 2-426	4937
69	UNIV OF SOUTHERN CAL	Hart, S. G.	ARC	Hancock, P. A.	NCC 2-379	2266
69	U TEX HLTH SC CTR-DA	Owens, F. C.	HQ-XE	Blomqvist, C. G.	NGT 00-050-206	5416
69	UNIV OF TORONTO	Hart, S. G.	ARC	Moray, N.	NAGW 429	5933
69	UNIV OF VIRGINIA	Kaiser, M. K.	ARC	Proffitt, D. R.	NCA 2-87	5633
69	UNIV OF VIRGINIA	Kaiser, M. K.	ARC	Proffitt, D. R.	NCA 2-255	5634
69	UNIV OF WASHINGTON	Nagel, D. C.	ARC	Nelson, T. O.	NCA 2-299	5795
69	UNIV WISC-MADISON	Wenzel, E.	ARC	Wightman, F. L.	NCA 2-115	5895
69	UNIV WISC-MADISON	Wenzel, E. M.	ARC	Wightman, F. L.	NCC 2-542	5897
71	COLORADO STATE UNIV	Owens, F. C.	HQ-LE	Omi, P. N.	NGT 00-050-094	2298
71	UNIV OF AKRON	Owens, F. C.	HQ-LE	Harris, F. W.	NGT 00-070-015	4712
71	UNIV OF CHICAGO	Ahluwalia, H. S.	HQ-ES	Dwyer, J. R.	NGT 00-050-272	2899
71	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-LE	Simmons, D. J.	NGT 00-050-007	3912
73	AMERICAN UNIVERSITY	Fries, S. D.	HQ-LB	McCurdy, H. E.	NASW 4236	2497
73	GEORGE WASHINGTON U	Fries, S.	HQ	Logsdon, J. M.	NASW 4237	2540
73	UNIV HOUSTON-CL LAKE	Fries, S. D.	HQ-LB	Bilstein, R. E.	NASW 4229	5274
73	UNIV OF KANSAS	Fries, S.	HQ-	Lewin, T. S.	NASW 4248	3147
73	UNIV MARYLAND-COL PK	Fries, S. D.	HQ-LB	Friedel, R. D.	NASW 4193	3377
75	GEORGIA SOUTHERN COL	Atkinson, J. D.	JSC	Tryman, N. D.	NAG 9-265	2750
75	UNIV OF NEW MEXICO	Schwartz, F.	LERC	Grannemann, W. W.	NGR 32-004-002	4102
76	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Ferrell, M. Z.	NGT 00-050-248	5205
79	CAL STATE U-SACRAMEN	Foushee, H. C.	ARC	Sparks, P. M.	NCC 2-310	1561
79	SO CAL INST OF ARCH	Cohen, M. M.	ARC	Nixon, D. A.	NCC 2-356	1620
79	STATE U NY-BINGHAMTN	Owens, F.	HQ-XE	Pattee, H.	NGT 00-050-036	4334
79	WORCESTER POLY INST	Friedman, R.	LERC	Custer, R. L.	NAG 3-821	3687
79	WORCESTER POLY INST	Snoddy, W. C.	MSFC	Tuler, F. R.	NAG 8-709	3689
99	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-XE	Tatarchuk, B. J.	NGT 00-050-353	1041
99	BRADLEY UNIVERSITY	Davis, L.	KSC	Podlasek, R. J.	NAS10-11425	2819
99	CALIF INST OF TECH	Dabbs, J.	MSFC	Prince, T. A.	NAG 8-669	1471
99	CALIF INST OF TECH	Owens, F. C.	HQ-XE	Yung, Y.	NGT 00-050-227	1523
99	CAL STATE U-FRESNO	Dacanay, M.	ARC	Beringson, D.	NCA 2-242	1544
99	CASE WESTERN RESERVE	Oran, W. A.	HQ-IC	Wallace, J. F.	NAGW 1193	4534
99	CITY COLLEGE OF N Y	Owens, F. C.	HQ-XE	Pierson, W. J.	NGT 00-070-084	4119
99	CORNELL UNIVERSITY	Boggess, N. W.	HQ-EZ	Harwit, M.	NAGW 761	4209
99	FLORIDA A&M UNIV	Spears, J. M.	KSC	Kidd, C.	NAG10-44	2581
99	FLORIDA INST OF TECH	Littlefield, M.	KSC	Dilpare, A. L.	NAG10-37	2593
99	HAMPTON UNIVERSITY	Smith, B.	LARC	Bowman, A.	NCA 1-75	5522
99	HOWARD UNIVERSITY	Menchan, D.	GSFC	Woodard, M. C.	NCA 5-107	2569
99	HOWARD UNIVERSITY	McGee, A. S.	HQ-XE	Fan, D. N.	NGT 09-011-060	2572
99	HUNTER COLLEGE	Owens, F. C.	HQ-XE	Strahler, A. H.	NGT 00-050-149	4265
99	JOHNS HOPKINS UNIV	Graeber, R. C.	ARC	Baker, S. P.	NCC 2-555	3265
99	MASS INST OF TECH	Hess, C. W.	JSC	Salisbury, J. K.	NAG 9-319	3561
99	MASS INST OF TECH	Owens, F. C.	HQ-LE	Prinn, R. G.	NGT 22-009-903	3632
99	MORGAN STATE UNIV	Friedmen, D. S.	GSFC	Taylor, J.	NCA 5-104	3275
99	OHIO STATE UNIV	Fogleman, S. W.	HQ-EB	Kraus, J. D.	NAGW 750	4655
99	OKLAHOMA STATE UNIV	Bilbrough, L.	HQ-XE	Wiggins, K.	NCCW 5	4783
99	OKLAHOMA STATE UNIV	Bilbrough, L. B.	HQ-LF	Wiggins, K. E.	NASW 4000	4782
99	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Coates, G. D.	NGT 00-070-060	5591
99	PENN STATE U-UNIV PK	Smith, I. S.	GSFC	Harrison, I. R.	NAG 5-643	4885
99	PENN STATE U-UNIV PK	Smith, I. S.	GSFC	Hunt, J. P.	NAG 5-644	4886
99	PENN STATE U-UNIV PK	Oran, W. A.	HQ-IC	Hymer, W.	NAGW 1196	4900
99	PENN STATE U-UNIV PK	Owens, F. C.	HQ-XE	Anderson, R. B.	NGT 00-070-044	4930
99	PRINCETON UNIVERSITY	Asrar, G.	HQ-EE	Wood, E. F.	NAGW 1392	4041
99	SAN FRAN STATE UNIV	Milov, L. A.	ARC	Heidtman, R. W.	NCA 2-175	1580
99	SAN FRAN STATE UNIV	Milov, L. A.	ARC	Cunningham, A. F.	NCA 2-188	1581
99	SAN FRAN STATE UNIV	Milov, L. A.	ARC	Greenaway, L. B.	NCA 2-267	1583
99	SAN JOSE STATE UNIV	Pike, R. L.	ARC	Freeman, J.	NCA 2-117	1591

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
99	SAN JOSE STATE UNIV	Pike, R. L.	ARC	Freeman, J.	NCA 2-295	1597
99	SOUTHEASTN OKLA ST U	Bivins, R.	HQ	McRorey, T. J.	NASW 4192	4785
99	SO UNIV & A&M COL-BR	Gilbert, R.	HQ	Roquemore, L.	NASW 4231	3199
99	STANFORD UNIVERSITY	Givens, J. J.	ARC	Germane, G.	NCA 2-269	1707
99	STANFORD UNIVERSITY	Black, D.	ARC	Petrosian, V.	NCC 2-322	1740
99	STANFORD UNIVERSITY	Witherow, W. J.	MSFC	Homsy, G. M.	NAG 8-715	1650
99	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Vitousek, P.	NGT 00-050-171	1775
99	STATE U NY-STONY BRK	Knott, W. M.	KSC	Krikorion, A. D.	NAG10-35	4364
99	UNIV ALA-HUNTSVILLE	Fields, S. A.	MSFC	Torr, D.	NAG 8-639	1114
99	UNIV ALA-HUNTSVILLE	Smith, L. J.	MSFC	Gregory, J.	NAS 8-36955	1156
99	UNIV ALA-UNIVERSITY	Curreri, P. A.	MSFC	Stefanescu, D. M.	NAS 8-36193	1185
99	UNIV OF ARIZONA	Melugin, R. K.	ARC	Richard, R. M.	NCC 2-426	1393
99	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Lebofsky, L. A.	NGT 00-050-048	1402
99	UNIV CALIF-BERKELEY	Dacanay, M. D.	ARC	Bender, R.	NCA 2-94	1855
99	UNIV CALIF-BERKELEY	Jones, H. W.	ARC	Shu, F.	NCC 2-36	1874
99	UNIV CALIF-BERKELEY	Ellis, S. R.	ARC	Stark, L.	NCC 2-86	1875
99	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Cranz, G.	NGT 00-050-099	1893
99	UNIV CALIF-SAN DIEGO	Solloway, C. B.	HQ-ST	Arnold, J. R.	NAGW 629	2114
99	UNIV CALIF-S BARBARA	Imhoff, M. L.	GSFC	Simonett, D. S.	NAG 5-1010	2186
99	UNIV OF CENTRAL FLA	Davis, T. C.	KSC	Gonzales, A.	NAG10-42	2617
99	UNIV OF CENTRAL FLA	Davis, T. C.	KSC	Gonzalez, A.	NAG10-43	2618
99	UNIV OF CENTRAL FLA	Boggs, W.	KSC	Khaltar, M. K.	NAS10-11351	2619
99	UNIV OF CENTRAL FLA	O'malley, J. K.	KSC	Khattar, M.	NAS10-11385	2620
99	UNIV OF CHICAGO	Alexander, J. K.	HQ-E	Meyer, P.	NGL 14-001-258	2886
99	UNIV OF CHILE	Bodin, W. J.	GSFC	Diaz, E.	NAS 5-1925	5939
99	UNIV COLORADO-BOLDR	Arnold, R. J.	HQ-EC	Byerly, R.	NAGW 1105	2373
99	UNIV OF FLORIDA	Bivins, R. G.	HQ	Thornton, J. R.	NASW 4183	2645
99	UNIV OF FLORIDA	Williams, P.	KSC	Koopman, B.	NAG10-48	2642
99	UNIV OF FLORIDA	Masakowski, G. E.	KSC	Thornton, J. R.	NAS10-11386	2646
99	UNIV OF FLORIDA	Davis, L.	KSC	Farber, E. A.	NAS10-11481	2647
99	UNIV OF GEORGIA	Ault, L.	HQ	Carmon, J. L.	NASW 4194	2761
99	UNIV HOUSTON-HOUSTON	Santy, P. A.	JSC	Bell, L.	NAS 9-16593	5252
99	UNIV HOUSTON-HOUSTON	Heselmeyer, R.	JSC	Hunsucker, J. L.	NAS 9-17315	5253
99	UNIV HOUSTON-HOUSTON	Goodrich, W.	JSC	Tezduyar, T. E.	NAS 9-17380	5254
99	UNIV HOUSTON-CL LAKE	Garman, J. R.	JSC	McKay, C. W.	NAS 9-17010	5273
99	UNIV OF KENTUCKY	Bivins, R.	HQ	Roeder, P.	NASW 4142	3169
99	UNIV OF KENTUCKY	Bivins, R.	HQ	Strong, W. R.	NASW 4186	3170
99	UNIV OF MAINE-ORONO	Averner, M.	HQ-EB	Margulis, L.	NAGW 607	3214
99	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LE	Irani, K. B.	NGT 00-050-110	3794
99	UNIV OF NEW MEXICO	Bivins, R.	HQ	Morain, S. A.	NASW 4191	4101
99	UNIV OF PENNSYLVANIA	Bryan, C. J.	KSC	MacDiarmid, A. G.	NAG10-25	4945
99	UNIV OF SOUTHERN CAL	Bivins, R.	HQ	King, R.	NASW 4199	2263
99	UNIV TENNESSEE-KNOXV	Abbott, K. H.	ARC	Ali, M.	NAG 1-513	5053
99	UNIV TENNESSEE-KNOXV	Belton, C.	KSC	Chang, H.	NAG10-46	5069
99	UNIV TENNESSEE-KNOXV	Owens, F. C.	HQ-LE	Ali, M.	NGT 43-001-807	5075
99	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Gangloff, R. P.	NGT 00-070-063	5648
99	UNIV WISC-MADISON	Twarowski, R. J.	ARC	Sromovsky, L. A.	NAS 2-12078	5881
99	UNIV WISC-MADISON	Owens, F. C.	HQ-XE	Vailas, A.	NGT 00-070-093	5904
99	COLLEGE OF WM & MARY	Morello, S. A.	LARC	Feyock, S.	NAG 1-618	5480
99	COLLEGE OF WM & MARY	Prior, E. J.	LARC	Kranbuehl, D. E.	NAS 1-18347	5490
99	VIRGINIA POLY INST	Nabors, S. A.	MSFC	Sink, D. S.	NAG 8-99	5704
99	VIRGINIA POLY INST	Owens, F. C.	HQ-XE	Dugger, W. E.	NGT 00-050-230	5720
99	VIRGINIA STATE UNIV	Owens, F. C.	HQ-LE	Wightman, J. P.	NGT 00-050-112	5727
99	WAKE FOREST UNIV	Belton, C.	KSC	Thomas, S. J.	NAG10-45	4473
99	WASHINGTON UNIVERSTY	Rosenthal, J. D.	HQ-E	Walker, R. M.	NAGW 122	3901
99	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Arvidson, R. E.	NGT 00-050-162	3915

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
47	GEORGIA INST OF TECH	O'brien, T. K.	LARC	Rehfield, L. W.	NAG 1-837	2697
47	GEORGIA INST OF TECH	Verrilli, M. J.	LERC	Antolovich, S. D.	NAG 3-503	2711
47	GEORGIA INST OF TECH	Harwell, R. J.	MSFC	Tucker, D. S.	NAG 8-103	2720
47	STANFORD UNIVERSITY	Nelson, H. G.	ARC	Springer, G. S.	NCC 2-304	1738
47	STANFORD UNIVERSITY	Nelson, H. G.	ARC	Nelson, D. V.	NCC 2-510	1753
47	STANFORD UNIVERSITY	Fogle, V.	MSFC	Feigelson, R. S.	NAG 8-489	1648
47	STATE UNIV NY-BUFFAL	Gross, B.	LERC	Wetherhold, R. C.	NAG 3-862	4342
47	SYRACUSE UNIVERSITY	Telesman, J.	LERC	Liu, H. W.	NAG 3-348	4383
47	TENNESSEE STATE UNIV	Randall, J. L.	MSFC	McCain, W. S.	NAG 8-101	5046
47	TEXAS A&M UNIVERSITY	Castner, W. L.	JSC	Roschke, P. N.	NAG 9-280	5184
47	TEXAS A&M UNIVERSITY	Crews, J. H., Jr.	LARC	Bradley, W. L.	NAG 1-443	5148
47	TEXAS A&M UNIVERSITY	Whitcomb, J. D.	LARC	Bradley, W. L.	NAG 1-659	5152
47	TEXAS A&M UNIVERSITY	Whitcomb, J. D.	LARC	Highsmith, A. L.	NAG 1-711	5153
47	TEXAS A&M UNIVERSITY	Whittenberger, J. D.	LERC	Woffenden, A.	NAG 3-702	5159
47	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Schapery, R.	NGT 00-050-261	5206
47	TUSKEGEE INSTITUTE	Johnson, W. S.	LARC	Dillon, I. G.	NAG 1-447	1047
47	TUSKEGEE INSTITUTE	Johnson, W. S.	LARC	Jeelani, S.	NAG 1-742	1048
47	TUSKEGEE INSTITUTE	Penn, B. G.	MSFC	Jeelani, S.	NAG 8-38	1051
47	TUSKEGEE INSTITUTE	Randall, J.	MSFC	Jeelani, S.	NAG 8-44	1053
47	UNIV OF AKRON	Roberts, G. P.	LERC	Young, G. W.	NCC 3-104	4710
47	UNIV OF AKRON	Rosenthal, B. N.	LERC	Batur, C.	NCC 3-109	4711
47	UNIV ALA-BIRMINGHAM	Robinson, M. B.	MSFC	Andrews, J. B.	NAG 8-72	1063
47	UNIV ALA-BIRMINGHAM	Curreri, P. A.	MSFC	Andrews, J. B.	NAG 8-840	1065
47	UNIV ALA-BIRMINGHAM	Johnston, M. H.	MSFC	Andrews, J. B.	NAS 8-36461	1070
47	UNIV ALA-BIRMINGHAM	Hediger, L.	MSFC	Breland, N. D.	NAS 8-36736	1072
47	UNIV ALA-BIRMINGHAM	Owens, F. C.	HQ-LE	Andrews, J.	NGT 00-050-040	1074
47	UNIV ALA-HUNTSVILLE	Bennett, J. E.	JSC	Workman, G. L.	NAS 9-17962	1166
47	UNIV ALA-HUNTSVILLE	Fripp, A. L.	LARC	Rosenberger, F. E.	NAG 1-733	1077
47	UNIV ALA-HUNTSVILLE	Duvall, W.	LERC	Rosenberger, F. E.	NAS 3-25361	1140
47	UNIV ALA-HUNTSVILLE	Oran, W. A.	HQ-IC	Lundquist, C.	NAGW 812	1133
47	UNIV ALA-UNIVERSITY	Curreri, P. A.	MSFC	Stefanesai, D. M.	NAG 8-70	1179
47	UNIV ALA-UNIVERSITY	Black, R. E.	MSFC	Stefanesou, D. M.	NAG 8-469	1182
47	UNIV OF ARIZONA	Goldstein, S. H.	JSC	Ortiz, K.	NAG 9-259	1315
47	UNIV OF ARIZONA	Chait, A.	LERC	Poirier, D. R.	NAG 3-723	1284
47	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-XE	Weber, E. R.	NGT 00-070-074	1904
47	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Haller, E. F.	NGT 00-050-037	1892
47	UNIV CALIF-L ANGELES	Holanda, R.	LERC	Bunshah, R. F.	NAG 3-451	1985
47	UNIV CALIF-L ANGELES	Freedman, M. R.	LERC	Todd, J. A.	NAG 3-685	1986
47	UNIV CALIF-S BARBARA	Nelson, H. G.	ARC	Shanabarger, M. R.	NCC 2-63	2200
47	UNIV OF CINCINNATI	Bonacuse, P.	LERC	Jayaraman, N.	NAG 3-506	4721
47	UNIV OF DELAWARE	Dexter, H. B.	ARC	Pipes, R. B.	NAG 1-378	2478
47	UNIV OF DELAWARE	Jegley, D. C.	LARC	Pipes, R. B.	NAS 1-18758	2493
47	UNIV OF FLORIDA	Outlaw, R. A.	LARC	Hoffund, G. B.	NAG 1-671	2625
47	UNIV OF FLORIDA	Poe, C. C.	LARC	Sankar, B. V.	NAG 1-826	2629
47	UNIV HOUSTON-HOUSTON	Curry, D. M.	JSC	Shamsundar, N.	NAG 9-216	5242
47	UNIV ILLINOIS-URBANA	McGaw, M. A.	LERC	Socie, D. F.	NAG 3-465	2932
47	UNIV ILLINOIS-URBANA	Klima, S. J.	LERC	Dos Reis, H. L.	NAG 3-798	2938
47	UNIV MICH-ANN ARBOR	Johnston, N. J.	LARC	Yee, A. F.	NAG 1-607	3714
47	UNIV MICH-ANN ARBOR	Kinard, W. H.	LARC	Felbeck, D. K.	NAS 1-17008	3766
47	UNIV MICH-ANN ARBOR	Nathal, M. V.	LERC	Gibala, R.	NCC 3-76	3786
47	U MINN-MNPLS-ST PAUL	Browne, I. D.	JSC	Nier, A. O.	NAG 9-110	3828
47	UNIV OF NOTRE DAME	Matus, L. G.	LERC	Zeller, M. V.	NAG 3-428	3047
47	UNIV OF SANTA CLARA	Lincoln, K. A.	ARC	Yang, C. Y.	NCA 2-685501	2248
47	UNIV TENNESSEE-KNOXV	Nathal, M. V.	LERC	Oliver, B. F.	NAG 3-876	5060
47	UNIV TENNESSEE-KNOXV	Ruff, R.	MSFC	Makay, M. H.	NAS 8-37292	5074
47	UNIV TEXAS-AUSTIN	Crews, J.	JSC	Yew, C. H.	NAG 9-114	5306
47	UNIV TEXAS-AUSTIN	Castner, W. L.	JSC	Erskine, J. L.	NAG 9-199	5309
47	UNIV TEXAS-AUSTIN	Visentine, J. T.	JSC	Fink, M.	NAG 9-204	5313
47	UNIV TEXAS-AUSTIN	Horiuchi, G. K.	JSC	Marcus, H. L.	NAG 9-205	5314
47	UNIV TEXAS-EL PASO	Pigg, O. E.	JSC	Bronson, A.	NAG 9-175	5394

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
47	UNIV TEXAS-EL PASO	Castner, W. L.	JSC	Guard, R. W.	NAG 9-281	5395
47	UNIV TEXAS-EL PASO	Nunes, A. C.	MSFC	McClure, J. C.	NAS 8-37425	5397
47	UNIV OF TORONTO	Baker, D. J.	LARC	Tennyson, R. C.	NAGW 752	5934
47	UNIV OF UTAH	Riccitiello, S. R.	ARC	Bascom, W. D.	NAG 2-469	5440
47	UNIV OF UTAH	Crews, J. H.	LARC	Bascom, W. D.	NAG 1-705	5434
47	UNIV OF UTAH	Hinkley, J. A.	LARC	Bascom, W. D.	NAG 1-706	5435
47	UNIV OF UTAH	Gyekenyesi, J. P.	LERC	Shetty, D. K.	NAG 3-789	5442
47	UNIV OF VIRGINIA	Fripp, A. L.	ARC	Jesser, W. A.	NAG 1-350	5601
47	UNIV OF VIRGINIA	Dicus, D. L.	LARC	Wilsdorf, H. G.	NAG 1-745	5606
47	UNIV OF WASHINGTON	Castles, S. H.	GSFC	Riggle, P.	NAG 5-1038	5749
47	UNIV OF WASHINGTON	Titran, R. H.	LERC	Kaufman, M. J.	NAG 3-871	5737
47	UNIV OF WASHINGTON	Greenfield, M. A.	HQ-RM	Bradt, R. C.	NAGW 199	5760
47	UNIV WISC-MADISON	Glasgow, T. K.	LERC	Perepezko, J. H.	NAG 3-436	5838
47	UNIV WISC-MADISON	Lehoczky, S. L.	MSFC	Kou, S.	NAG 8-705	5864
47	UNIV OF WYOMING	Kourtides, D. A.	ARC	Zimmerman, R. S.	NAG 2-470	5914
47	UNIV OF WYOMING	Johnston, N. J.	LARC	Zimmerman, R. S.	NAG 1-277	5910
47	VANDERBILT UNIVERSTY	Oran, W.	HQ-IC	Bayuzik, K. Y.	NAGW 810	5084
47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Brinson, H. F.	NCC 2-71	5712
47	VIRGINIA POLY INST	Tenney, D. R.	LARC	Torgersen, P. E.	NAG 1-343	5662
47	VIRGINIA POLY INST	Everett, R. A.	LARC	Dowling, N. E.	NAG 1-822	5682
47	VIRGINIA POLY INST	Vary, A.	LERC	Henneke, E. G.	NAG 3-172	5693
47	WORCESTER POLY INST	Atkins, H. L.	MSFC	Tuler, F. R.	NAG 8-619	3688
47	YALE UNIVERSITY	Browne, I. D.	JSC	Longhi, J.	NAG 9-93	2466
47	YALE UNIVERSITY	Roberts, G. D.	LERC	Rosner, D. E.	NAG 3-898	2463
49	ARIZONA STATE UNIV	Chai, A.	LERC	Neitzel, G. P.	NAG 3-568	1214
49	AUBURN UNIV-AUBURN	Rupp, C. C.	MSFC	Green, M. E.	NAG 8-618	1022
49	AUBURN UNIV-AUBURN	Hengel, J. E.	MSFC	Foster, W. A.	NAG 8-683	1025
49	AUBURN UNIV-AUBURN	Martin, C. L.	MSFC	Storzini, R. H.	NAS 8-36147	1032
49	AUBURN UNIV-AUBURN	Dozier, J.	MSFC	Foster, W. A.	NAS 8-36288	1033
49	BOWIE STATE COLLEGE	Jones, G. K.	GSFC	Srivastava, S.	NAG 5-1054	3219
49	CALIF INST OF TECH	McGee, A. S.	HQ-XE	Albee, A. L.	NGT 05-003-790	1525
49	CAL STATE U-NRTHRDE	Cramer, D. B.	HQ-S	Bluth, B. J.	NAGW 659	1556
49	CARNEGIE-MELLON UNIV	Andary, J. F.	GSFC	Khosla, P. K.	NAG 5-1091	4832
49	CARNEGIE-MELLON UNIV	Holcomb, L. B.	HQ-RC	Kanade, T.	NAGW 1175	4834
49	CASE WESTERN RESERVE	Lawrence, R. F.	LERC	Boulding, M. E.	NAG 3-406	4487
49	CASE WESTERN RESERVE	Vernon, R. W.	LERC	Kamotani, Y.	NAG 3-567	4493
49	CASE WESTERN RESERVE	Jacobson, T. P.	LERC	Ostrach, S.	NAG 3-570	4494
49	CASE WESTERN RESERVE	Tew, R. C.	LERC	Dybbs, A.	NAG 3-700	4504
49	CASE WESTERN RESERVE	Jaskowiak, M. H.	LERC	Hrma, P.	NAG 3-740	4508
49	CASE WESTERN RESERVE	Litt, J. S.	LERC	Loparo, U. A.	NAG 3-788	4516
49	CASE WESTERN RESERVE	Lesco, D. J.	LERC	Kadambi, J. R.	NAG 3-831	4523
49	CASE WESTERN RESERVE	Montegani, F. J.	LERC	McKeon, T. J.	NCC 3-42	4541
49	CASE WESTERN RESERVE	McGee, A. S.	HQ-XE	Prahl, J. M.	NGT 36-027-011	4565
49	CLEVELAND STATE UNIV	Madzsar, G. C.	LERC	Atherton, W. J.	NAG 3-889	4583
49	COLORADO STATE UNIV	Womack, W.	JSC	Phillips, R. W.	NAS 9-17168	2294
49	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Brutsaert, W.	NGT 00-050-335	4250
49	CUYAHOGA COMMUNITY C	Lawrence, R. F.	LERC	Candelario, A. R.	NAG 3-313	4615
49	FLORIDA A&M UNIV	Warren, L.	HQ-U	Humphries, F. S.	NGT 00-090-012	2584
49	FLORIDA A&M UNIV	Freeman, Y. B.	HQ-U	Rogers, D.	NGT 00-090-015	2585
49	GALLAUDET COLLEGE	Margolis, M.	HQ-U	Nissen, A. B.	NGT 00-090-013	2518
49	GEORGE WASHINGTON U	Morakis, J. C.	GSFC	Helgert, H. J.	NSG 5109	2549
49	GEORGE WASHINGTON U	Mikulas, M. M.	LARC	Liebowitz, H.	NAG 1-740	2524
49	GEORGETOWN UNIV	Owens, F. C.	HQ-LE	Krogh, P. F.	NGT 09-009-800	2552
49	HAMPTON UNIVERSITY	Hall Jr., J. B.	LARC	Spencer, J. H.	NAG 1-450	5507
49	HAMPTON UNIVERSITY	McGee, A. S.	HQ-XE	Spencer, J. W.	NGT 47-020-800	5525
49	HOWARD UNIVERSITY	Goodson, A.	GSFC	Gill, T. L.	NAG 5-995	2561
49	HOWARD UNIVERSITY	Young, J. W.	LARC	Bainum, P. M.	NSG 1414	2574
49	LINCOLN UNIV-PA	Menchan, D.	GSFC	Williams, W. W.	NCA 5-98	4863
49	LINCOLN UNIV-PA	Margolis, M.	HQ-U	Williams, W.	NGT 00-090-020	4864
49	MANHATTAN COLLEGE	Armstrong, E. S.	LERC	Naraghi, M. H.	NAG 3-892	4267

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	MASS INST OF TECH	Lee, A. T.	ARC	Young, L. R.	NAG 2-12	3493
49	MASS INST OF TECH	Meyer, G.	ARC	Athans, M.	NAG 2-297	3497
49	MASS INST OF TECH	Owens, F. C.	HQ-XE	Young, L. R.	NGT 00-050-218	3625
49	MASS INST OF TECH	Owens, F. C.	HQ-LE	Young, L.	NGT 00-050-077	3620
49	MASS INST OF TECH	Hartman, S. C.	HQ-RS	Mar, J. W.	NAGW 1335	3585
49	MICHIGAN TECH UNIV	Reid, M. A.	LERC	Cornilsen, B. C.	NAG 3-519	3705
49	MORGAN STATE UNIV	Menchan, D.	GSFC	De Loatch, E. M.	NCA 5-105	3276
49	MORGAN STATE UNIV	Sharp, M. J.	GSFC	Proctor, N.	NCA 5-109	3277
49	MORGAN STATE UNIV	Warren, L.	HQ-U	DeLoatch, E.	NGT 00-090-005	3278
49	MORGAN STATE UNIV	Freeman, Y. B.	HQ-U	Proctor, N.	NGT 00-090-019	3279
49	NEW MEX ST U-LAS CR	Pincus, B. R.	GSFC	Bawcom, D.	NAS 5-29149	4084
49	NEW YORK UNIVERSITY	Meyer, G.	ARC	Demmel, J. W.	NAG 2-493	4271
49	NO CAROLINA STATE U	Farmer, F. A.	LARC	McAllister, D. F.	NAG 1-696	4431
49	NO CAROLINA STATE U	Hartman, S. C.	HQ-RS	Dejamette, F. R.	NAGW 1331	4447
49	OHIO STATE UNIV	Norman, S. D.	ARC	Smith, P. J.	NCA 2-288	4666
49	OHIO STATE UNIV	Shafto, M.	ARC	Woods, D. D.	NCA 2-351	4669
49	OHIO STATE UNIV	Shyne, R. J.	LERC	Lee, J. D.	NAG 3-706	4635
49	OHIO STATE UNIV	Fox, D. S.	LERC	Cawley, J. D.	NAG 3-755	4637
49	OHIO STATE UNIV	Stearns, C. A.	LERC	Peters, L.	NAG 3-784	4640
49	OHIO STATE UNIV	Jones, C. S.	MSFC	Richardson, R. W.	NAS 8-35595	4663
49	OLD DOMINION UNIV	Roberts, B. B.	JSC	Ash, R. L.	NAG 9-308	5569
49	OLD DOMINION UNIV	Bush, H. G.	LARC	Razzaq, Z.	NAG 1-336	5533
49	OLD DOMINION UNIV	Wieting, A. R.	LARC	Thornton, E. A.	NSG 1321	5595
49	OLD DOMINION UNIV	Owens, F. C.	HQ-LB	Tiwari, S.	NGT 47-003-029	5592
49	PENN STATE U-UNIV PK	Hartman, S. C.	HQ-RS	Merkle, C. L.	NAGW 1356	4902
49	PRINCETON UNIVERSITY	Haggard, J.	LERC	Williams, F. A.	NAS 3-24640	4043
49	PURDUE UNIVERSITY	Stroud, W. J.	LARC	Sun, C. T.	NAG 1-581	2993
49	PURDUE UNIVERSITY	Blech, R. A.	LERC	Ecer, A.	NAG 3-858	3012
49	RENSSELAER POLY-NY	Truskowski, W.	GSFC	Wozny, M. J.	NAG 5-487	4296
49	RENSSELAER POLY-NY	Lawrence, R. F.	LARC	Burnett, N.	NAG 3-544	4291
49	RENSSELAER POLY-NY	Hartman, S. C.	HQ-RS	Saridis, G. N.	NAGW 1333	4301
49	GEORGIA INST OF TECH	Palmer, E. A.	ARC	Mitchell, C. M.	NAG 2-413	2707
49	GEORGIA INST OF TECH	Vykukal, H. C.	ARC	Otson, L. H.	NSG 2356	2748
49	GEORGIA INST OF TECH	Eggers, D. S.	JSC	Cooke, W. P.	NAS 9-17381	2736
49	GEORGIA INST OF TECH	Huff, D. L.	LERC	Sankar, L. N.	NAG 3-768	2715
49	GEORGIA INST OF TECH	Margolis, M.	HQ-U	Chesnutt, C. C.	NGT 00-090-010	2746
49	SPELMAN COLLEGE	White, B.	HQ	Falconer, E.	NGT 00-090-003	2754
49	SPELMAN COLLEGE	Margolis, M.	HQ-U	Hibbard, L.	NGT 00-090-018	2755
49	STANFORD UNIVERSITY	Meyer, G.	ARC	Franklin, G. F.	NAG 2-359	1634
49	STANFORD UNIVERSITY	Ennis, D. J.	ARC	Goodman, J. W.	NCA 2-78	1681
49	STANFORD UNIVERSITY	Kwak, D.	ARC	Chang, I. D.	NCA 2-198	1696
49	STANFORD UNIVERSITY	Chow, L.	ARC	Banks, P.	NCA 2-333	1720
49	STANFORD UNIVERSITY	Vykukal, H. C.	ARC	Leifer, L.	NCC 2-295	1737
49	STANFORD UNIVERSITY	Keith, B. H.	GSFC	Banks, P. M.	NCC 5-30	1761
49	STANFORD UNIVERSITY	Leblanc, G. R.	JSC	Banks, P. M.	NCC 9-15	1762
49	STANFORD UNIVERSITY	Steinberg, R.	LERC	Chase, R. A.	NAG 3-914	1641
49	STANFORD UNIVERSITY	McGee, A. S.	HQ-XE	Bershader, D.	NGT 05-020-412	1786
49	STATE U NY-STONY BRK	Calomino, A.	LERC	Rubinstein, A. A.	NAG 3-751	4355
49	TEXAS A&M UNIV SYSTM	Stubbs, R. M.	LERC	Peddicord, K. L.	NAG 3-820	5145
49	TEXAS A&M UNIVERSITY	Morakis, J. C.	GSFC	Georgheades, C. N.	NAG 5-778	5164
49	TEXAS A&M UNIVERSITY	Kennedy, R. C.	JSC	Best, F. R.	NAG 9-142	5170
49	TEXAS A&M UNIVERSITY	Henry, M. F.	JSC	Young, T.	NAG 9-192	5177
49	TEXAS A&M UNIVERSITY	Sunkel, J. W.	JSC	Parlos, A. G.	NAG 9-275	5182
49	TEXAS A&M UNIVERSITY	Stroughal, G.	JSC	Porteiro, J. R.	NAS 9-16443	5198
49	TEXAS A&M UNIVERSITY	Madzsar, G. C.	LERC	Taylor, H. F.	NAG 3-846	5161
49	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Peddicord, K. L.	NGT 00-050-388	5210
49	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-LB	Jones, W. B.	NGT 44-001-900	5214
49	TUSKEGEE INSTITUTE	Hardy, T. L.	LERC	Ray, P. R.	NAG 3-726	1049
49	UNIV OF AKRON	Hergenrother, P. M.	LARC	Kelley, F. N.	NAG 1-779	4688
49	UNIV OF AKRON	Stone, J. R.	LERC	Serafini, J. S.	NAG 3-637	4697

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	UNIV OF AKRON	Proctor, M. P.	LERC	Braun, M. J.	NAG 3-675	4699
49	UNIV ALA-BIRMINGHAM	Snyder, R.	MSFC	Rosenblum, W. E.	NAG 8-743	1067
49	UNIV ALA-HUNTSVILLE	Lindberg, J. P.	ARC	Ford, D.	NAG 8-717	1127
49	UNIV ALA-HUNTSVILLE	Bachtel, F. D.	MSFC	Chen, C. P.	NAG 8-92	1099
49	UNIV ALA-HUNTSVILLE	Hale, J. P.	MSFC	Rogers, J. G.	NAG 8-546	1109
49	UNIV ALA-HUNTSVILLE	Richards, J. S.	MSFC	Gilbert, J. A.	NAG 8-686	1120
49	UNIV ALA-HUNTSVILLE	Hale, J. P.	MSFC	Rogers, J. G.	NAG 8-706	1124
49	UNIV ALA-HUNTSVILLE	Morrone, C. A.	MSFC	Alexander, J. I.	NAG 8-724	1129
49	UNIV ALA-HUNTSVILLE	Curreri, P. A.	MSFC	Wu, M. K.	NCC 8-2	1168
49	UNIV ALA-HUNTSVILLE	Wolfsberger, J. W.	MSFC	Ford, D. R.	NCC 8-13	1170
49	UNIV ALA-HUNTSVILLE	Rosendhal, J. D.	HQ-E	Wessling, F. C.	NAGW 847	1134
49	UNIV ALA-HUNTSVILLE	Owens, F. C.	HQ-LB	Karr, G. R.	NGT 01-008-021	1178
49	UNIV ALA-UNIVERSITY	Curreri, T. A.	MSFC	Stefanescu, D. M.	NCC 8-3	1186
49	UNIV ALA-UNIVERSITY	Owens, F. C.	HQ-LE	Freeman, L. M.	NGT 01-002-099	1187
49	UNIV OF ARIZONA	Sharp, G. R.	LERC	Somner, R. E.	NAS 3-25522	1377
49	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Hunten, D. M.	NAGW 546	1323
49	UNIV OF ARIZONA	Hartman, S. C.	HQ-RS	Lewis, J. S.	NAGW 1332	1368
49	UNIV CALIF-BERKELEY	Meyer, G.	ARC	Sastry, S. S.	NAG 2-243	1792
49	UNIV CALIF-BERKELEY	Stocker, D. P.	LERC	Pagni, P. J.	NAG 3-443	1803
49	UNIV CALIF-IRVINE	Ross, H. D.	LERC	Sirignano, W. A.	NAG 3-627	1949
49	UNIV CALIF-L ANGELES	Iliiff, K. W.	ARC	Balakrishnan, A. V.	NCC 2-374	2049
49	UNIV CALIF-L ANGELES	Sobieski, J.	LARC	Schmit, L. A., Jr.	NSG 1490	2063
49	UNIV CALIF-SAN DIEGO	Ross, H.	LERC	Libby, P. A.	NAG 3-654	2080
49	UNIV CALIF-SAN DIEGO	Sacksteder, K. R.	LERC	Berliad, A. L.	NAS 3-24639	2134
49	UNIV OF CENTRAL FLA	McGee, A. S.	HQ-XE	Anderson, L. A.	NGT 00-060-002	2622
49	UNIV OF CHICAGO	Horz, F.	JSC	Simpson, J. A.	NAG 9-309	2863
49	UNIV OF CINCINNATI	Owens, F. C.	HQ-XE	Huston, R. L.	NGT 00-070-048	4738
49	UNIV OF CINCINNATI	Hartman, S. C.	HQ-RS	Rubin, S. G.	NAGW 1407	4730
49	UNIV COLORADO-BOLDR	Knight, N. F.	LARC	Dow, J. O.	NAG 1-802	2307
49	UNIV COLORADO-BOLDR	Hartman, S. C.	HQ-RS	Morganthaler, G. W.	NAGW 1388	2389
49	UNIV OF DAYTON	Telesman, J.	LERC	Hartman, G.	NAG 3-774	4744
49	UNIV OF HAWAII-MANOA	Morakis, J. C.	GSFC	Lin, S.	NAG 5-931	2767
49	UNIV OF HAWAII-MANOA	Wales, R. O.	GSFC	Longfield, D.	NAS 5-28403	2798
49	UNIV HOUSTON-HOUSTON	Juday, R.	JSC	Bourgeois, B.	NAG 9-206	5236
49	UNIV HOUSTON-HOUSTON	Eggers, D. S.	JSC	Long, S. A.	NAG 9-219	5244
49	UNIV HOUSTON-HOUSTON	McGee, A. S.	HQ-XE	Bannerot, R. B.	NGT 44-005-803	5267
49	UNIV OF IDAHO	Miller, W. H.	GSFC	Maki, G. K.	NAG 5-1043	2815
49	UNIV OF IDAHO	Hartman, S. C.	HQ-RS	Maki, G. K.	NAGW 1406	2816
49	UNIV ILLINOIS-CHICGO	Meyer, G.	ARC	Grossman, R.	NAG 2-513	2912
49	UNIV ILLINOIS-CHICGO	Shannon, J. L.	LERC	Chudnovsky, A.	NAG 3-754	2916
49	UNIV ILLINOIS-CHICGO	Gross, K. W.	MSFC	Chire, H. H.	NAG 8-106	2919
49	UNIV ILLINOIS-URBANA	Greene, W. H.	LARC	Lopez, L. A.	NAG 1-646	2925
49	UNIV OF IOWA	Owens, F. C.	HQ-XE	Arora, J.	NGT 00-050-362	3118
49	UNIV OF KANSAS	Samos, J.	LARC	Barr, B. G.	NAG 1-761	3132
49	UNIV OF KENTUCKY	Olson, S. L.	LERC	Altenkirch, R. A.	NAS 3-23901	3168
49	UNIV MARYLAND-COL PK	Degnan, J. J.	GSFC	Hochuli, U.	NAG 5-263	3305
49	UNIV MARYLAND-COL PK	Dombrowski, M.	GSFC	Wilkerson, T. D.	NAG 5-323	3306
49	UNIV MARYLAND-COL PK	Morakis, J. C.	GSFC	Narayan, P.	NAG 5-923	3335
49	UNIV MARYLAND-COL PK	Ford, F. E.	GSFC	Anand, D. K.	NAG 5-955	3339
49	UNIV MARYLAND-COL PK	Owens, F. C.	HQ-XE	Boroson, H. R.	NGT 21-002-254	3405
49	UNIV OF MIAMI	Wales, R.	GSFC	Brown, O.	NAS 5-29338	2669
49	UNIV MICH-ANN ARBOR	Malin, J. T.	JSC	Kieras, D.	NAG 9-139	3748
49	UNIV MICH-ANN ARBOR	Aydelott, J. C.	LERC	Kaviany, M.	NAS 3-25366	3771
49	UNIV MICH-ANN ARBOR	Bilbro, J. W.	MSFC	Hays, P. B.	NAG 8-741	3747
49	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LB	Weintraub, D. J.	NGT 23-005-802	3804
49	UNIV MICH-ANN ARBOR	Hartman, S. C.	HQ-RS	Ulaby, F. T.	NAGW 1334	3762
49	U MINN-MNPLS-ST PAUL	Tew, R. C.	LERC	Goldberg, L. F.	NAG 3-693	3819
49	UNIV MISS-UNIVERSITY	Owens, F. C.	HQ-XE	Hackett, R. M.	NGT 00-050-365	3873
49	UNIV MO-COLUMBIA	Farmer, F. H.	LARC	Bao, H. P.	NAG 1-875	3879
49	UNIV NEBRASKA-LINCLN	Miller, W. H.	GSFC	Sayood, K.	NAG 5-916	3949

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	UNIV OF NEW MEXICO	Gutierrez, O. A.	HQ-U	Purvines, G. B.	NGT 32-004-770	4105
49	UNIV OF NOTRE DAME	Miller, W. H.	GSFC	Costello, D.	NAG 5-557	3049
49	UNIV OF PENNSYLVANIA	Premack, T.	GSFC	Bajcsy, R.	NAG 5-1045	4941
49	UNIV OF PITTSBURGH	Mihaloew, J. R.	LERC	Vogt, W. B.	NAG 3-729	4954
49	UNIV OF SANTA CLARA	Holst, T. L.	ARC	Ma, J. T.	NCA 2-201	2243
49	UNIV STHN COLORADO	Holland, V. B.	ARC	Dunn, W. R.	NCC 2-373	2452
49	UNIV TENNESSEE-KNOXV	Kassel, P. C.	LARC	Steinhoff, J. S.	NAG 1-560	5054
49	UNIV TENNESSEE-KNOXV	Chai, A.	LERC	Parang, M.	NAS 3-25359	5070
49	UNIV TENNESSEE-KNOXV	Scott, D. R.	MSFC	Green, W. L.	NAG 8-630	5062
49	UNIV TEXAS-AUSTIN	Appler, R.	GSFC	Shelvs, P. J.	NAS 5-29404	5330
49	UNIV TEXAS-AUSTIN	Erickson, J. D.	JSC	Kuipers, B.	NAG 9-200	5310
49	UNIV TEXAS-AUSTIN	Simon, F. F.	LERC	Crawford, M. E.	NAG 3-864	5289
49	UNIV TEXAS-AUSTIN	Schultz, D.	LERC	Nozette, S.	NAG 3-928	5291
49	UNIV TEXAS-AUSTIN	Owens, F. C.	HQ-LB	Hull, D. G.	NGT 44-012-803	5362
49	UNIV TEXAS-DALLAS	Meyer, G.	ARC	Hunt, C. R.	NAG 2-366	5367
49	UNIV TEXAS-EL PASO	Owens, F. C.	HQ-XE	McClure, J. C.	NGT 00-070-086	5399
49	UNIV TEXAS-EL PASO	Owens, F. C.	HQ-XE	McClure, J. C.	NGT 00-070-087	5400
49	U TEX HLTH SC CTR-DA	Womack, W. D.	JSC	Gaffney, F. A.	NAS 9-17167	5415
49	UNIV OF TOLEDO	Kiraly, L. J.	LERC	Standley, H. M.	NAG 3-699	4752
49	UNIV OF TOLEDO	Chai, A. T.	LERC	Dewitt, K. J.	NCC 3-34	4771
49	UNIV OF VIRGINIA	Lamb, G. M.	GSFC	Mattauch, R. J.	NAS 5-24218	5632
49	UNIV OF VIRGINIA	Storaasli, O. O.	LARC	Ortega, J. M.	NAG 1-46	5598
49	UNIV WISC-MADISON	Stocker, D. P.	LERC	Farrell, P. V.	NAG 3-718	5839
49	VANDERBILT UNIVERSTY	Wood, G. M.	LARC	Potter, J. L.	NAG 1-878	5080
49	VIRGINIA POLY INST	Somers, D. M.	LARC	Eiss, N. S., Jr.	NAG 1-300	5661
49	VIRGINIA POLY INST	Slomp, W. S.	LARC	Wightman, J. P.	NAG 1-521	5667
49	VIRGINIA POLY INST	Baucorn, R. M.	LARC	Herakovich, C. T.	NAG 1-673	5672
49	VIRGINIA POLY INST	Chestnutt, D.	LARC	Fuller, C. R.	NAG 1-762	5679
49	VIRGINIA POLY INST	Sobieski, J.	LARC	Drew, D. R.	NAS 1-17256	5707
49	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Hendricks, S. L.	NGT 00-050-000	5713
49	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Hyer, M. W.	NGT 00-050-119	5717
49	VIRGINIA POLY INST	Owens, F. C.	HQ-LE	Duke, J. C., Jr.	NGT 47-004-811	5723
49	XAVIER UNIV-LA	Warren, L.	HQ-U	Baker, G. W.	NGT 00-090-004	3210
49	XAVIER UNIV-LA	Warren, L.	HQ-U	Baker, G. W.	NGT 00-090-011	3211
51	ALABAMA A&M UNIV	MacElroy, R. D.	ARC	Tadros, M.	NCC 2-501	1018
51	ALABAMA A&M UNIV	Nachtwey, D. S.	JSC	Kale, P.	NAG 9-246	1012
51	ALABAMA A&M UNIV	Ruff, R. C.	MSFC	Lal, R. B.	NAS 8-36634	1017
51	ARIZONA STATE UNIV	Rummel, J. D.	HQ-EB	Blankenship, R. E.	NAGW 1395	1246
51	BAYLOR COL OF MED	Daunton, N. G.	ARC	Igarashi, M.	NAG 2-289	5097
51	BAYLOR COL OF MED	Ross, M. D.	ARC	Fermin, C. D.	NAG 2-342	5098
51	BAYLOR COL OF MED	Mandel, A. D.	ARC	Alfrey, C. P.	NAG 2-500	5099
51	BAYLOR UNIVERSITY	Halstead, T. W.	HQ-EB	Moore, R.	NAGW 734	5092
51	BAYLOR UNIVERSITY	Halstead, T. W.	HQ-EB	Moore, R.	NAGW 1041	5093
51	BOWDOIN COLLEGE	Ross, M. D.	ARC	Phillips, C. R.	NAG 2-511	3212
51	BRANDEIS UNIVERSITY	Kutyna, F. A.	JSC	Johnson, W. H.	NAG 9-293	3437
51	CAL STATE U-NRTHRDGE	Ross, M. D.	ARC	Oppenheimer, S. B.	NAG 2-499	1555
51	CAL STATE U-NRTHRDGE	Owens, F. C.	HQ-XE	Oppenheimer, S. B.	NGT 00-070-085	1560
51	CASE WESTERN RESERVE	Souza, K.	ARC	Keefe, J. R.	NAG 2-339	4481
51	CLARKSON UNIVERSITY	Oran, W.	HQ-IC	Wilcox, W. R.	NAGW 976	4127
51	COLORADO STATE UNIV	Connolly, J. P.	ARC	Phillips, R. W.	NAS 2-12824	2291
51	COLUMBIA UNIVERSITY	Ross, M. D.	ARC	Wolgemuth, D. I.	NAG 2-385	4137
51	COLUMBIA UNIVERSITY	Holton, E. M.	ARC	Doty, S. B.	NCC 2-325	4172
51	CORNELL UNIVERSITY	Halstead, T. W.	HQ-EB	Leopold, A. C.	NAGW 3	4201
51	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Bird, J. M.	NGT 00-050-294	4247
51	EAST CAROLINA UNIV	Winget, C. M.	ARC	Bruschi, C. V.	NAG 2-365	4412
51	ESTRN VA MED SCHL	Winget, C. M.	ARC	Spangenberg, D. B.	NAG 2-343	5501
51	ESTRN VA MED SCHL	Winget, C. W.	ARC	Spangenberg, D. B.	NAG 2-508	5502
51	EMORY UNIVERSITY	Schmidt, G. K.	ARC	Popovic, V.	NAS 2-10527	2688
51	EMORY UNIVERSITY	Connolly, J. P.	ARC	Merrill, A. H.	NAS 2-12829	2689
51	FLORIDA A&M UNIV	Arnaud, S. B.	ARC	Soliman, K. F.	NAG 2-411	2579

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
51	FLORIDA STATE UNIV	Rummel, J. D.	HQ-EB	Friedmann, E. I.	NSG 7337	2615
51	GEORGETOWN UNIV	Fischer, J. R.	GSFC	Corliss, J. B.	NAG 5-1066	2550
51	GEORGETOWN UNIV	Devincenzi, D. L.	HQ-EB	Corliss, J. B.	NAGW 1011	2551
51	GEORGIA STATE UNIV	Ballard, R. W.	ARC	Rumbaugh, D. M.	NAG 2-438	2751
51	HARVARD UNIVERSITY	Ballard, R. W.	ARC	Vatner, S. F.	NAG 2-451	3445
51	HARVARD UNIVERSITY	Leon, H.	ARC	Moore-ede, M. C.	NAS 2-10547	3468
51	INDIANA ST UNIV	Ross, M. D.	ARC	Cochran, S. L.	NAG 2-498	2974
51	INDIANA U-BLOOMINGTN	Souza, K. A.	ARC	Malacinski, G. M.	NAG 2-323	2975
51	JOHNS HOPKINS UNIV	Owens, F. C.	HQ-LE	Moudrianakis, E. N.	NGT 00-050-060	3268
51	KENYON COLLEGE	Halstead, T. W.	HQ-EB	Edwards, K. L.	NAGW 368	4619
51	LEHIGH UNIVERSITY	Bannett, B.	MSFC	Vanderhoff, J. W.	NAS 8-32951	4856
51	MARQUETTE UNIVERSITY	Grindeland, R. E.	ARC	Fitts, R. H.	NAG 2-212	5828
51	MASS INST OF TECH	Daunton, N. G.	ARC	Young, L. R.	NAG 2-445	3500
51	MASS INST OF TECH	Owens, F. C.	HQ-LE	Jewitt, D. C.	NGT 00-050-008	3617
51	MED COL OF WISC	Ferandin, J. A.	ARC	Riley, D. A.	NAS 2-11305	5830
51	MIAMI UNIVERSITY	Kutyna, F.	JSC	Parker, D. E.	NAS 9-17413	4622
51	MICHIGAN STATE UNIV	Winget, C. M.	ARC	Bandurski, R. S.	NAG 2-362	3692
51	MICHIGAN STATE UNIV	Halstead, T. W.	HQ-EB	Bandurski, R. S.	NAGW 97	3699
51	MICHIGAN STATE UNIV	Halstead, T.	HQ-EB	Poff, K. L.	NAGW 882	3700
51	MONTANA STATE UNIV	Sauer, R. L.	JSC	McFeters, G. A.	NAS 9-17346	3930
51	MONTANA STATE UNIV	Owens, F. C.	HQ-XE	McFeters, G. A.	NGT 00-050-217	3931
51	MT SINAI SCH OF MED	Daunton, N. G.	ARC	Cohen, B.	NAG 2-336	4268
51	NO CAR A&T STATE U	Schmidt, G. K.	ARC	Ahrens, S. T.	NCA 2-545201	4426
51	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Vans, M. E.	NAGW 297	4653
51	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Cline, M.	NAGW 625	4654
51	OHIO STATE UNIV	Owens, F. C.	HQ-LE	Evans, M. L.	NGT 36-020-800	4675
51	OREGON STATE UNIV	Halstead, T. W.	HQ-EB	Lomax, T. L.	NAGW 1253	4805
51	PA ST U-HERSHEY MED	Keil, L.	ARC	Severs, W. B.	NCC 2-127	4866
51	PENN STATE U-UNIV PK	Winget, C. M.	ARC	Hymer, W. C.	NCC 2-370	4920
51	PRINCETON UNIVERSITY	Ross, M. D.	ARC	Farley, J.	NAG 2-397	4020
51	PRINCETON UNIVERSITY	Fogle, W.	MSFC	Saville, D. A.	NAS 8-32614	4047
51	PURDUE UNIVERSITY	Owens, F. C.	HQ-XE	Kim, K.	NGT 00-050-196	3037
51	ROCKEFELLER UNIV	Daunton, N. G.	ARC	Wilson, V. J.	NSG 2380	4308
51	ST LOUIS UNIVERSITY	Holton, E. M.	ARC	Partridge, N. C.	NAG 2-454	3877
51	SAN DIEGO STATE UNIV	Halstead, T. W.	HQ-EB	Rayle, D.	NAGW 230	1572
51	SAN DIEGO STATE UNIV	Owens, F. C.	HQ-XE	Rayle, D. L.	NGT 00-050-177	1577
51	SAN JOSE STATE UNIV	Grindeland, R. E.	ARC	Yengoyan, L. S.	NAG 2-410	1586
51	SAN JOSE STATE UNIV	Jahnke, L. L.	ARC	Holley, D. C.	NCA 2-59	1590
51	SAN JOSE STATE UNIV	Winget, C. M.	ARC	Holley, D. C.	NCA 2-203	1594
51	SAN JOSE STATE UNIV	Daunton, N. G.	ARC	Fox, R. A.	NCC 2-167	1600
51	SAN JOSE STATE UNIV	Corcoran, M. L.	ARC	Fox, R. A.	NCC 2-449	1612
51	SO ILL UNIV-CARBONDL	Winget, C. M.	ARC	Ferraro, J. S.	NAG 2-452	2840
51	STANFORD UNIVERSITY	Matson, P.	ARC	Mooney, H. A.	NCA 2-31	1678
51	STANFORD UNIVERSITY	Des Marais, D.	ARC	Briggs, W.	NCA 2-228	1699
51	STANFORD UNIVERSITY	MacElroy, R. D.	ARC	Roughgarden, J.	NCA 2-258	1703
51	STANFORD UNIVERSITY	Daunton, N. G.	ARC	Peroutka, S. J.	NCA 2-745504	1726
51	STANFORD UNIVERSITY	Averner, M. M.	HQ-EB	Vitousek, P.	NAGW 1068	1659
51	STATE U NY-BINGHAMTN	Winget, C. M.	ARC	Ferraro, J. S.	NAG 2-361	4332
51	STATE U NY-STONY BRK	Knott, W. M.	KSC	Krikorian, A. D.	NAS10-11395	4366
51	STATE U NY-STONY BRK	Halstead, T. W.	HQ-EB	Krikorian, A. D.	NSG 7270	4372
51	TEXAS A&M UNIVERSITY	Chullen, C.	JSC	Nicks, O. W.	NAG 9-161	5174
51	TEXAS A&M UNIVERSITY	Kutyna, F. A.	JSC	Lessard, C. S.	NAG 9-303	5187
51	TEXAS SOUTHERN UNIV	Henninger, D. L.	JSC	Wilson, R. F.	NAG 9-174	5217
51	TULANE UNIVERSITY	MacElroy, R. D.	ARC	Johnson, E. J.	NCA 2-800501	3203
51	TUSKEGEE INSTITUTE	Philpott, D. E.	ARC	Sapp, W. J.	NCC 2-455	1060
51	UNIV NEB-MED CNTR	Ross, M. D.	ARC	Jones, T. A.	NAG 2-430	3961
51	UNIV TENNESSEE-CHAT	Mandel, A. D.	ARC	Lange, R. D.	NAG 2-494	5051
51	U OF MD ENVTEST STDS	Owens, F. C.	HQ-LE	Fisher, T. R.	NGT 21-002-822	3419
51	UNIV ALA-BIRMINGHAM	Herrmann, F.	MSFC	Rosenblum, W. M.	NAG 8-600	1064
51	UNIV ALA-BIRMINGHAM	Herren, B.	MSFC	Bugg, C. E.	NAS 8-36611	1071

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
51	UNIV ALA-BIRMINGHAM	Oran, W. A.	HQ-IC	Brigg, C. E.	NAGW 813	1069
51	UNIV ALA-HUNTSVILLE	Pierson, D.	JSC	Kilgore, M. V.	NAS 9-17973	1167
51	UNIV ALA-HUNTSVILLE	Herrmann, F.	MSFC	Choudry, A.	NAG 8-589	1111
51	UNIV OF ARIZONA	Souza, K. A.	ARC	Gruener, R. P.	NAG 2-326	1272
51	UNIV OF ARIZONA	Winget, C. M.	ARC	Tischler, M. E.	NAG 2-384	1273
51	UNIV OF ARIZONA	Halstead, T. W.	HQ-EB	Gruener, R. P.	NAGW 1325	1366
51	UNIV OF ARIZONA	Schmoll, K. S.	HQ-EN	Bier, M.	NAGW 693	1329
51	UNIV OF ARIZONA	Owens, F. C.	HQ-XE	Levine, M. L.	NGT 00-050-270	1411
51	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Tischler, M. E.	NGT 00-050-019	1400
51	U ARKANSAS-PINE BLUF	Daunton, N. G.	ARC	Walker, C. A.	NAG 2-427	1450
51	UNIV CALIF-BERKELEY	Ross, M. D.	ARC	Lewis, E. R.	NAG 2-448	1799
51	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Tinoco, I.	NCA 2-108	1856
51	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Packer, L.	NCA 2-140	1859
51	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Packer, L.	NCA 2-231	1863
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-EB	Feldman, L. J.	NAGW 239	1823
51	UNIV CALIF-BERKELEY	Fogleman, S. W.	HQ-EB	Buchanan, B. B.	NAGW 427	1825
51	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Feldman, L. J.	NGT 00-050-017	1889
51	UNIV CALIF-DAVIS	Holton, E. M.	ARC	Horowitz, J. M.	NAG 2-341	1911
51	UNIV CALIF-DAVIS	Holton, E. M.	ARC	Fuller, C. A.	NAG 2-349	1912
51	UNIV CALIF-DAVIS	Donnelly, N. J.	ARC	Fuller, C.	NAS 2-12334	1928
51	UNIV CALIF-DAVIS	MacElroy, R. D.	ARC	Huffaker, R. C.	NCC 2-392	1940
51	UNIV CALIF-DAVIS	McKay, C. P.	ARC	Harrison, A. A.	NCC 2-469	1941
51	UNIV CALIF-DAVIS	Averner, M. M.	HQ-EB	Washino, R. K.	NAGW 1096	1925
51	UNIV CALIF-DAVIS	Owens, F. C.	HQ-XE	Fuller, C. A.	NGT 00-050-195	1942
51	UNIV CALIF-DAVIS	Owens, F. C.	HQ-LB	Bernauer, E.	NGT 05-004-801	1944
51	UNIV CALIF-IRVINE	Ross, M. D.	ARC	Blanks, R. H.	NAG 2-399	1948
51	UNIV CALIF-IRVINE	Ballard, R. W.	ARC	Baldwin, K. M.	NAS 2-10522	1955
51	UNIV CALIF-IRVINE	Rummel, J. D.	HQ-EB	Lanyi, T. K.	NAGW 212	1952
51	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Roy, R. R.	NCA 2-268	2046
51	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Vailas, A. C.	NCA 2-390501	2048
51	UNIV CALIF-L ANGELES	Ballard, R. W.	ARC	Edgerton, V. R.	NCC 2-535	2050
51	UNIV CALIF-SAN DIEGO	White, R. J.	HQ-EB	West, J. B.	NAGW 897	2118
51	UNIV CALIF-SAN DIEGO	Rummel, J. D.	HQ-EB	Arrhenius, G.	NAGW 1031	2123
51	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Ganong, W. F.	NAG 2-434	2165
51	UNIV CALIF-SAN FRAN	Connolly, J. P.	ARC	Cann, C. E.	NAS 2-12846	2169
51	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Bikle, D. D.	NCC 2-328	2174
51	UNIV CALIF-SAN FRAN	Danelis, J. V.	ARC	Dallman, M. F.	NCC 2-354	2175
51	UNIV CALIF-SAN FRAN	Corcoran, M. L.	ARC	Ralston, H. J.	NCC 2-491	2177
51	UNIV CALIF-SAN FRAN	Halstead, T. W.	HQ-EB	Fulford, M. H.	NAGW 1244	2168
51	UNIV CALIF-SAN FRAN	Owens, F. C.	HQ-LE	Bikle, D.	NGT 05-029-801	2178
51	UNIV OF CHICAGO	Daunton, N. G.	ARC	Goldberg, J. M.	NAG 2-148	2842
51	UNIV OF CHICAGO	Des Marais, D. J.	ARC	Raup, D. M.	NAG 2-237	2843
51	UNIV OF CHICAGO	Soffen, G. A.	HQ-EB	Fernandez, H.	NSG 7303	2908
51	UNIV OF DELAWARE	Averner, M. M.	HQ-EB	Klenas, V.	NAGW 374	2487
51	UNIV OF HAWAII-MANOA	Devincenzi, D. L.	HQ-EB	Folsome, C. E.	NGR 12-001-109	2808
51	UNIV HOUSTON-HOUSTON	Rummel, J. D.	HQ-EB	Fox, G. E.	NSG 7440	5271
51	UNIV HOUSTON-HOUSTON	Oran, W. A.	HQ-IC	Chu, C. W.	NAGW 977	5250
51	UNIV ILLINOIS-CHICGO	Des Marais, D. J.	ARC	Sepkoski, J. J., Jr.	NAG 2-282	2910
51	UNIV OF LOUISVILLE	Grindeland, R. E.	ARC	Musacchia, X. J.	NAG 2-386	3172
51	UNIV OF LOUISVILLE	Halstead, T. W.	HQ-EB	Musacchia, X. J.	NAGW 70	3175
51	U OF MED & DEN-CAMDN	Owens, F. C.	HQ-XE	Stein, T. P.	NGT 00-070-033	4067
51	UNIV MICH-ANN ARBOR	Daunton, N. G.	ARC	Ross, M. D.	NAG 2-333	3718
51	UNIV MICH-ANN ARBOR	Oseroff, H.	GSFC	Olsen, C. E.	NAS 5-28755	3774
51	UNIV MICH-ANN ARBOR	Halstead, T. W.	HQ-EB	Kaufman, P. B.	NAGW 34	3750
51	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LE	Kaufman, P. B.	NGT 00-070-004	3800
51	UNIV NEBRASKA-LINCLN	Halstead, T. W.	HQ-EB	Jones, T. A.	NAGW 1275	3954
51	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Moore, B.	NCC 2-27	4003
51	UNIV NEW HAMP-DURHAM	Averner, M. M.	HQ-EB	Moore, B.	NAGW 714	3995
51	UNIV N CAR-CHPL HILL	Arnaud, S. B.	ARC	Dillaman, R. M.	NAG 2-391	4464
51	UNIV OF PACIFIC	Holton, E. M.	ARC	Roberts, W. E.	NAG 2-322	2229

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
51	UNIV OF PACIFIC	Holton, E. M.	ARC	Roberts, W. E.	NCC 2-224	2231
51	UNIV OF PITTSBURGH	Daunton, N. G.	ARC	Tomko, D. L.	NCC 2-393	4961
51	U PUERTO RICO-MAYAGZ	Owens, F. C.	HQ-LE	Gonzalez, J. G.	NGT 51-001-800	5927
51	U PUERTO RICO-RIO PI	Owens, F. C.	HQ-XE	Fetcher, N.	NGT 00-050-256	5929
51	UNIV SAN FRANCISCO	Nachtwey, D. S.	JSC	Benton, E. V.	NAS 9-17389	2237
51	UNIV OF SANTA CLARA	Hochstein, L. I.	ARC	Tomlinson, G. A.	NCA 2-50	2240
51	UNIV OF SANTA CLARA	MacElroy, R. D.	ARC	Klein, H. P.	NCA 2-161	2242
51	UNIV OF SANTA CLARA	Jahnke, L. L.	ARC	Klein, H. P.	NCA 2-226	2245
51	UNIV OF SANTA CLARA	Hochstein, L. I.	ARC	Tomlinson, G. A.	NCA 2-250	2246
51	UNIV OF SANTA CLARA	Grindeland, R.	ARC	Fast, T.	NCC 2-406	2251
51	UNIV OF SO FLORIDA	Rummel, J. D.	HQ-EB	Briggs, J. C.	NAGW 1173	2682
51	UNIV OF SOUTHERN CAL	Owens, F. C.	HQ-LE	Kiefer, D. A.	NGT 00-050-091	2271
51	U OF TEN CTR HLTH&SC	Schatte, C. L.	ARC	Lange, R. D.	NAS 2-11586	5077
51	UNIV TEXAS-AUSTIN	Halstead, T. W.	HQ-EB	Roux, S. J.	NSG 7480	5365
51	U TEX MED BRANCH-GAL	Daunton, N. G.	ARC	Perachio, A. A.	NAG 2-26	5401
51	U TEX MED BRANCH-GAL	Tomko, D. L.	ARC	Correia, M. J.	NAG 2-186	5402
51	U TEX MED BRANCH-GAL	Daunton, N. G.	ARC	Gallagher, J. P.	NAG 2-260	5403
51	U TEX MED BRANCH-GAL	Daunton, N. G.	ARC	Correia, M. H.	NAG 2-293	5404
51	U TEX MED BRANCH-GAL	Connolly, J. P.	ARC	Correia, M. J.	NAG 2-446	5405
51	U TEX MED BRANCH-GAL	Owens, F. C.	HQ-XE	Perachio, A. A.	NGT 00-050-165	5410
51	U TEX HLTH SC CTR-HU	Grindeland, R. E.	ARC	Booth, F. W.	NAG 2-239	5418
51	U TEX HLTH SC CTR-HU	Daligcon, B. C.	ARC	Duke, P. J.	NAG 2-332	5419
51	U TEX HLTH SC CTR-HU	Winget, C. M.	ARC	Duke, J. C.	NCC 2-423	5425
51	U TEX HLTH SC CTR-HU	Morrison, D. R.	JSC	Tom, B. H.	NAS 9-17403	5423
51	U TEX HLTH SC CTR-SA	Ross, M. D.	ARC	Wiederhold, M. L.	NAG 2-442	5426
51	UNIV OF UTAH	Arnaud, S. B.	ARC	Jee, W. S.	NAG 2-435	5438
51	UNIV OF VIRGINIA	Ross, M. D.	ARC	Chochran, S. L.	NAG 2-456	5610
51	UNIV OF VIRGINIA	Rummel, J. D.	HQ-EB	Kretsinger, R. H.	NAGW 1233	5630
51	UNIV OF WASHINGTON	Averner, M. M.	HQ-EB	Richey, J. E.	NAGW 1066	5773
51	UNIV OF WASHINGTON	Halstead, T. W.	HQ-EB	Cleland, R. E.	NAGW 1394	5786
51	UNIV WISC-MADISON	Winget, C. M.	ARC	Schatten, G.	NAG 2-459	5837
51	UNIV WISC-MADISON	MacElroy, R. D.	ARC	Tibbitts, T. W.	NCC 2-301	5896
51	UNIV WISC-MADISON	Oran, W.	HQ-IC	Bollinger, J. G.	NAGW 975	5876
51	UNIV WISC-MADISON	Owens, F. C.	HQ-XE	Becker, W.	NGT 00-050-267	5902
51	UNIV WISC-MILWAUKEE	Averner, M. M.	HQ-EB	Nealson, K. H.	NAGW 1063	5909
51	UTAH STATE UNIV	MacElroy, R. D.	ARC	Salisbury, F. B.	NCC 2-139	5465
51	VIRGINIA POLY INST	McKay, C. P.	ARC	Simmons, G. M.	NCA 2-316	5710
51	VIRGINIA POLY INST	Halstead, T. W.	HQ-EB	Lewis, N. G.	NAGW 1277	5706
51	WAKE FOREST UNIV	Ferandin, J.	ARC	Hutchins, P. M.	NAS 2-10523	4474
51	WAKE FOREST UNIV	Owens, F. C.	HQ-XE	Hutchins, P.	NGT 00-070-081	4476
51	WAYNE STATE UNIV	Ross, M. D.	ARC	Kerr, T. P.	NAG 2-404	3808
51	WILLIAMS COLLEGE	Halstead, T. W.	HQ-EB	Slocum, R. D.	NAGW 1382	3680
51	WILLIAMS COLLEGE	Halstead, T. W.	HQ-ER	Sloam, R. D.	NAGW 1049	3679
51	WOODSHOLE OCEAN INST	Averner, M.	HQ-EB	Dacey, J. H.	NAGW 606	3682
51	WRIGHT STATE UNIV	Daunton, N. G.	ARC	Crampton, G. H.	NCC 2-229	4779
51	WRIGHT STATE UNIV	Boyce, V.	JSC	Hamilton, G. C.	NAG 9-263	4778
51	YALE UNIVERSITY	Averner, M. M.	HQ-EB	Galston, A. W.	NAGW 1402	2469
51	YALE UNIVERSITY	Halstead, T. W.	HQ-EB	Galston, A. W.	NSG 7290	2477
54	COLORADO STATE UNIV	Nachtwey, D. S.	JSC	Lett, J.	NAG 9-10	2286
54	HUNTER COLLEGE	Peterson, D. L.	ARC	Band, L. E.	NCA 2-143	4264
54	MASS INST OF TECH	Yates, I. C.	MSFC	Gatos, H. C.	NAS 8-36604	3600
54	NO CAROLINA STATE U	Peterson, D. L.	ARC	Hitchner, L. E.	NCA 2-247	4448
54	NORTHERN ARIZONA U	Matson, P. A.	ARC	Bowman, A.	NCA 2-141	1266
54	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Sack, F. D.	NAGW 780	4656
54	PRAIRIE VIEW A&M U	Peterson, D. L.	ARC	Brams, E. A.	NAG 2-400	5106
54	SAN JOSE STATE UNIV	Matson, P.	ARC	Savage, W.	NCA 2-145	1592
54	GEORGIA INST OF TECH	Fraser, R. S.	GSFC	Patterson, E. M.	NAG 5-592	2717
54	STANFORD UNIVERSITY	Peterson, D. L.	ARC	Vitousek, P.	NCA 2-30	1677
54	STANFORD UNIVERSITY	Peterson, D. L.	ARC	Vitousek, P. M.	NCA 2-239	1701
54	STATE UNIV NY-ALBANY	Sauer, R.	JSC	Janauer, G. E.	NAS 9-16604	4325

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
54	TUSKEGEE INSTITUTE	Philpott, D. E.	ARC	Sapp, W. J.	NCC 2-12	1059
54	UNIV CALIF-DAVIS	Winget, C. M.	ARC	Fuller, C. A.	NAG 2-467	1916
54	UNIV CALIF-DAVIS	Sebesta, P.	ARC	Washino, R.	NCA 2-153	1932
54	UNIV CALIF-DAVIS	Lawless, J. G.	ARC	Ustin, S. L.	NCA 2-229	1935
54	UNIV OF GEORGIA	Luvall, J. C.	NSTL	Welch, R. A.	NAG13-10	2760
54	UNIV OF MAINE-ORONO	Averner, M. M.	HQ-EB	King, G. M.	NAGW 1428	3215
54	UNIV OF MONTANA	Peterson, D. L.	ARC	Running, S. W.	NCA 2-138	3935
54	UNIV OF MONTANA	Peterson, D. L.	ARC	Running, S. W.	NCA 2-252	3936
54	UNIV OF MONTANA	Owens, F. C.	HQ-LE	Running, S. W.	NGT 27-003-800	3937
54	UNIV NEW HAMP-DURHAM	Peterson, D. L.	ARC	Aber, J. D.	NCA 2-238	4002
54	UNIV WISC-MADISON	Tri, T. O.	JSC	Bach-y-rita, P.	NAG 9-171	5866
54	UNIV WISC-MILWAUKEE	Wickland, D. E.	HQ-EE	Nealson, K. H.	NAGW 1047	5908
55	AUBURN UNIV-AUBURN	Carter, G. A.	NSTL	Mitchell, R. J.	NAG13-7	1029
55	CORNELL UNIVERSITY	Owens, F. C.	HQ-XE	Leopold, A. C.	NGT 00-050-197	4242
55	GEORGE WASHINGTON U	Oseroff, H.	GSFC	Lang, R. H.	NAG 5-265	2531
55	JOHNS HOPKINS UNIV	Owens, F. C.	HQ-LE	Paor, D. D.	NGT 00-050-054	3267
55	MASS INST OF TECH	Oseroff, H.	GSFC	Oliver, D. O.	NAG 5-270	3519
55	NO CAROLINA STATE U	MacElroy, R.	ARC	Raper, C. D., Jr.	NCC 2-101	4460
55	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Raghavan, V.	NAGW 901	4657
55	PURDUE UNIVERSITY	MacElroy, R. D.	ARC	Mitchell, C. A.	NCC 2-100	3027
55	PURDUE UNIVERSITY	Knott, W. M.	KSC	Mitchell, C. A.	NAG10-18	3022
55	TEXAS A&M UNIVERSITY	Pitts, D.	JSC	Fung, A.	NAG 9-115	5167
55	TEXAS A&M UNIVERSITY	Pitts, D. E.	JSC	Heilman, J. L.	NAG 9-121	5168
55	UNIV CALIF-DAVIS	MacElroy, R. D.	ARC	Huffaker, R. C.	NCC 2-99	1936
55	UNIV CALIF-L ANGELES	Knott, W. M.	KSC	Berry, W. L.	NAG10-52	2031
55	UNIV HOUSTON-HOUSTON	Henninger, D. L.	JSC	Venketeswaran, S.	NAG 9-214	5241
55	UNIV OF KANSAS	Oseroff, H.	GSFC	Moore, R. K.	NAG 5-271	3137
55	UNIV MICH-ANN ARBOR	Oseroff, H.	GSFC	Ulaby, F. T.	NAG 5-480	3735
55	UNIV NEBRASKA-LINCLN	Kimes, D. S.	GSFC	Norman, J. M.	NAG 5-277	3942
55	UNIV TEXAS-ARLINGTON	Oseroff, H.	GSFC	Fung, A. K.	NAG 5-486	5276
55	WASHINGTON ST UNIV	Knott, W. M.	KSC	Poovaliah, B. W.	NAG10-32	5814
56	BAYLOR COL OF MED	Schneider, V.	JSC	Leblanc, A.	NAG 9-130	5100
56	BAYLOR COL OF MED	Huntoon, C. L.	JSC	Alfrey, C.	NAS 9-14662	5101
56	BAYLOR COL OF MED	Huntoon, C.	JSC	Suki, W.	NAS 9-17589	5102
56	BAYLOR COL OF MED	Owens, F. C.	HQ-XE	Atassi, M. Z.	NGT 00-050-225	5103
56	BRANDEIS UNIVERSITY	Kutyna, F. A.	JSC	Lackner, J. R.	NAG 9-295	3438
56	CASE WESTERN RESERVE	Friedman, D. S.	GSFC	Ko, W. H.	NAS 5-29423	4535
56	CASE WESTERN RESERVE	Harris, J. W.	JSC	Leigh, R. J.	NAS 9-17439	4536
56	COLUMBIA UNIVERSITY	Arnaud, S. B.	ARC	Pawluk, R. J.	NCA 2-172102	4171
56	COLUMBIA UNIVERSITY	Nachtwey, D. S.	JSC	Worgul, D.	NAG 9-256	4159
56	CORNELL UNIV-MED CTR	Graeber, R. C.	ARC	Moline, M. L.	NCC 2-253	4259
56	DUKE UNIVERSITY	Horrigan, D. J.	JSC	Vann, R. D.	NAG 9-134	4402
56	HARVARD UNIVERSITY	Cintron, N. M.	JSC	Hollenberg, N. K.	NAG 9-17	3457
56	HARVARD UNIVERSITY	Cintron, N. M.	JSC	Ede, M. C.	NAG 9-264	3458
56	LA STATE U-SHREVEPT	Kutyna, F. A.	JSC	Wood, C. D.	NAG 9-167	3192
56	MASS INST OF TECH	Cintron, N. M.	JSC	Wurtman, R. J.	NAG 9-144	3557
56	MASS INST OF TECH	Kutyna, F. A.	JSC	Oman, C. M.	NAG 9-244	3558
56	MASS INST OF TECH	White, R. J.	HQ-EB	Cohen, R. J.	NAGW 988	3574
56	MED COL OF WISC	Grindeland, R. E.	ARC	Riley, D. A.	NAG 2-460	5829
56	PENN STATE U-UNIV PK	Grindeland, R. E.	ARC	Hymer, W. C.	NAG 2-481	4873
56	PENN STATE U-UNIV PK	Kutyna, F. A.	JSC	Koch, K.	NAG 9-118	4897
56	PENN STATE U-UNIV PK	Morrison, D.	JSC	Hymer, W.	NAS 9-17416	4910
56	RICE UNIVERSITY	Wolf, D.	JSC	McIntire, I. V.	NAG 9-207	5118
56	STANFORD UNIVERSITY	Arnaud, S. B.	ARC	Steele, C. R.	NAG 2-130	1628
56	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Hargens, A.	NGT 00-050-350	1778
56	STATE UNIV NY-BUFFAL	Owens, F. C.	HQ-XE	Farhi, L. E.	NGT 00-050-202	4348
56	ST U NY HCS-BROOKLYN	Grindeland, R. E.	ARC	Etlinger, J. D.	NAG 2-531	4376
56	THOMAS JEFFERSON U	Logan, J. S.	JSC	Herbison, G. J.	NAG 9-133	4936
56	TULANE UNIVERSITY	Mehler, W. R.	ARC	Brizzee, K. R.	NAG 2-101	3201
56	TULANE UNIVERSITY	Owens, F. C.	HQ-XE	Walker, B. R.	NGT 00-050-176	3205

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
56	UNIV CALIF-DAVIS	Arnaud, S. B.	ARC	Martin, R. B.	NAG 2-455	1915
56	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Edgerton, V. R.	NAG 2-450	1977
56	UNIV CALIF-L ANGELES	Grindeland, R. E.	ARC	Vailas, A. C.	NAG 2-479	1980
56	UNIV CALIF-L ANGELES	Kutyna, F. A.	JSC	Markham, C. H.	NAG 9-179	2006
56	UNIV CALIF-SAN DIEGO	Hargens, A. R.	ARC	Sartoris, D. J.	NCC 2-556	2147
56	UNIV CALIF-SAN DIEGO	Charles, J. B.	JSC	West, J. B.	NAG 9-271	2109
56	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Cann, C. E.	NCC 2-178	2172
56	UNIV OF FLORIDA	Koller, A.	KSC	Grams, R. R.	NAG10-41	2641
56	UNIV OF FLORIDA	Long, I. D.	KSC	Melker, R. J.	NAS10-11495	2648
56	UNIV HOUSTON-HOUSTON	Stewart, D.	JSC	Brown, J. H.	NAG 9-225	5245
56	UNIV HOUSTON-HOUSTON	Schneider, V. S.	JSC	Nerem, R. M.	NCC 9-12	5259
56	UNIV OF KENTUCKY	Charles, J. B.	JSC	Knapp, C. F.	NAG 9-298	3167
56	UNIV OF LOUISVILLE	Taylor, G. R.	JSC	Sonnenfeld, G.	NAG 9-181	3173
56	UNIV OF LOUISVILLE	Taylor, G. R.	JSC	Sonnenfeld, G.	NAG 9-234	3174
56	UNIV MARYLAND-BALT	Reynolds, M. A.	JSC	Siegel, J. H.	NAG 9-163	3284
56	UNIV MARYLAND-BALT	Kutyna, F. A.	JSC	Drusano, G. L.	NAG 9-249	3285
56	UNIV OF MASS-AMHERST	Kutyna, F. A.	JSC	Andres, R. O.	NAG 9-291	3656
56	U OF MED & DEN-CAMDN	Newkirk, K.	JSC	Stein, P.	NAS 9-17276	4066
56	UNIV N CAR-CHPL HILL	Arnaud, S. B.	ARC	Mechanic, G.	NAG 2-181	4463
56	UNIV OF PENNSYLVANIA	Waligora, J. M.	JSC	Lambertson, C. J.	NAG 9-154	4943
56	UNIV TEXAS-AUSTIN	Savely, R. T.	JSC	Himmelblau, D. M.	NAG 9-287	5317
56	UNIV TEXAS-DALLAS	Charles, J. B.	JSC	Buckey, J. C.	NAG 9-297	5375
56	U TEX MED BRANCH-GAL	Taylor, G. R.	JSC	Meehan, R. T.	NAG 9-170	5406
56	U TEX MED BRANCH-GAL	Cintron, N. M.	JSC	Stuart, C. A.	NAG 9-172	5407
56	U TEX MED BRANCH-GAL	Sams, C. F.	JSC	Meehan, R. T.	NAG 9-306	5408
56	U TEX MED BRANCH-GAL	Owens, F. C.	HQ-LE	Perachio, A.	NGT 44-008-801	5411
56	U TEX HLTH SC CTR-DA	Cintron, N. M.	JSC	Pak, C. Y.	NAG 9-152	5412
56	U TEX HLTH SC CTR-DA	Charles, J. B.	JSC	Buckey, J. C.	NAG 9-267	5413
56	U TEX HLTH SC CTR-HU	Harris, B.	JSC	Schneider, V.	NAG 9-193	5420
56	U TEX HLTH SC CTR-HU	Waligora, J. M.	JSC	Butler, B. D.	NAG 9-215	5421
56	U TEX HLTH SC CTR-HU	Johnson, P.	JSC	Schneider, V. S.	NAS 9-16688	5422
56	U TEX HLTH SC CTR-HU	Logan, J.	JSC	Houtchens, B.	NAS 9-17522	5424
56	U TEX HLTH SC CTR-SA	Schenider, V. S.	JSC	Holt, G. R.	NAG 9-250	5427
56	U TEX HLTH SC CTR-SA	Leach, C.	JSC	Lifschitz, M.	NAS 9-16366	5428
56	UNIV OF UTAH	Reynolds, M. A.	JSC	Westenskow, D.	NAS 9-17345	5448
56	UNIV OF UTAH	Logan, J. S.	JSC	Gardner, R.	NAS 9-17425	5449
56	VANDERBILT UNIVERSTY	Owens, F. C.	HQ-LE	Stubbs, G.	NGT 00-050-081	5087
56	VIRGINIA COMNWLTH U	Samos, J.	LARC	Patterson, J. L.	NAG 1-695	5653
56	VIRGINIA COMNWLTH U	Yost, W. T.	LARC	Marmarou, A.	NCC 1-87	5656
56	VIRGINIA COMNWLTH U	Sulzman, F.	HQ-EB	Eckberg, D. L.	NAGW 1178	5654
56	WASHINGTON ST UNIV	Sauer, R. L.	JSC	Bull, R. J.	NAG 9-226	5812
56	WASHINGTON UNIVERSTY	Tomko, D.	ARC	Paige, G.	NCA 2-222	3910
59	ALABAMA A&M UNIV	Randall, J. L.	MSFC	Kale, R.	NAG 8-97	1010
59	BRANDEIS UNIVERSITY	Kutyna, F.	JSC	Lackner, J. B.	NAS 9-15147	3439
59	FLORIDA A&M UNIV	Hamilton, D. A.	JSC	Casey, J.	NSG 2183	2587
59	FLORIDA A&M UNIV	Warren, L. S.	HQ-U	Fannin, L. D.	NGT 10-040-900	2586
59	GEORGE WASHINGTON U	Halstead, T. W.	HQ-EB	Jones, E.	NASW 3165	2539
59	GEORGE WASHINGTON U	Halstead, T.	HQ-EB	Holden, C. D.	NASW 4324	2541
59	MASS INST OF TECH	Billingham, J.	ARC	Coreen, R. I.	NAG 2-327	3498
59	MASS INST OF TECH	MacElroy, R. D.	ARC	Karel, M.	NCC 2-231	3607
59	MASS INST OF TECH	Harris, C. D.	JSC	Young, L. R.	NAS 9-15343	3602
59	MASS INST OF TECH	Harris, C. D.	JSC	Young, L. R.	NAS 9-16523	3603
59	MISSISSIPPI STATE U	Morrison, D.	JSC	Rundell, R.	NAS 9-17319	3867
59	NEW YORK UNIVERSITY	MacElroy, R. D.	ARC	Volk, T.	NCA 2-101	4279
59	OREGON HLTH SCNS U	Gardner, L. B.	MSFC	Brooks, D. E.	NAS 8-35333	4794
59	PENN STATE U-UNIV PK	Morrison, D.	JSC	Todd, P.	NAS 9-17431	4911
59	SAN FRAN STATE UNIV	Carle, G. C.	ARC	Banin, A.	NCC 2-352	1584
59	SAN JOSE STATE UNIV	Carle, G. C.	ARC	Ling, A. C.	NCC 2-345	1607
59	STATE UNIV NY-ALBANY	Carle, G. C.	ARC	Scattergood, T. W.	NCC 2-395	4328
59	STATE UNIV NY-BUFFAL	Lafferty, P.	JSC	Farhi, L.	NAS 9-16042	4345

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
59	ST U NY HCS-BROOKLYN	Grindeland, R. E.	ARC	Ettinger, J. D.	NAG 2-162	4375
59	TEXAS A&M UNIVERSITY	Cullingford, H. S.	JSC	Wolfe, J. C.	NAG 9-253	5180
59	TEXAS A&M UNIVERSITY	Juday, R.	JSC	Griswold, N.	NAS 9-17320	5199
59	TEXAS TECH UNIV	Holben, B.	GSFC	Dregne, H. E.	NAG 5-514	5221
59	UNIV ALA-HUNTSVILLE	Hueter, U.	MSFC	Crump, W. J.	NAG 8-698	1122
59	UNIV ALA-HUNTSVILLE	Gardner, L. B.	MSFC	Harris, J. M.	NAS 8-35362	1146
59	UNIV OF ARIZONA	Hargers, A. R.	ARC	Tipton, C. M.	NAG 2-392	1274
59	UNIV OF ARIZONA	Newkirk, K.	JSC	Criswell, B. S.	NAS 9-16838	1384
59	UNIV OF ARIZONA	Jex, D.	MSFC	Bier, M.	NAS 8-32950	1381
59	UNIV CALIF-IRVINE	Seitz, W. W.	JSC	Petrofsky, J. S.	NAS 9-17767	1957
59	UNIV CALIF-SAN DIEGO	Davis, C.	JSC	Young, W.	NAS 9-16037	2143
59	UNIV CALIF-SAN DIEGO	Brinton, H. C.	HQ-EL	McFadden, L. A.	NAGW 1274	2132
59	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Ramsay, D. J.	NCC 2-194	2173
59	UNIV CALIF-SAN FRAN	Arnaud, S.	ARC	Cann, C. E.	NCC 2-363	2176
59	UNIV CALIF-SAN FRAN	Schneider, V. S.	JSC	Genant, H. K.	NAG 9-157	2166
59	UNIV CALIF-SAN FRAN	Newkirk, K. E.	JSC	Arnaud, C. D.	NAS 9-16227	2170
59	UNIV OF CHICAGO	Browne, I. D.	JSC	Smith, J. V.	NAG 9-106	2861
59	UNIV COLORADO-BOLDR	Oran, W. A.	HQ-IC	Luttges, M.	NAGW 1197	2382
59	UNIV OF GEORGIA	Tucker, J.	GSFC	Box, E. O.	NAG 5-516	2756
59	UNIV HOUSTON-HOUSTON	Winget, C. M.	ARC	Cowles, J. R.	NAS 2-11165	5251
59	UNIV OF MASS-AMHERST	Rummel, J. D.	HQ-EB	Irvine, W. M.	NAGW 1353	3664
59	UNIV OF PENNSYLVANIA	Waligora, J. M.	JSC	Lambertsen, C. J.	NAS 9-17238	4947
59	U TEX HLTH SC CTR-DA	Young, W.	JSC	Blomquist, C. G.	NAS 9-16044	5414
59	UNIV OF WYOMING	Matson, P. A.	ARC	Reiners, W. A.	NAG 2-355	5913
59	VIRGINIA COMNWLTH U	Young, W. J.	JSC	Exkberg, D. L.	NAS 9-16046	5655
59	WRIGHT STATE UNIV	Evans, F. D.	HQ-EB	Mohler, S.	NGT 36-024-790	4780
61	JOHNS HOPKINS UNIV	Johnston, J. C.	ARC	Yantis, S.	NCA 2-171	3264
61	UNIV CALIF-SAN FRAN	Kirk, P. J.	ARC	Kamiya, J.	NCC 2-115	2171
61	U MINN-MNPLS-ST PAUL	Owens, F. C.	HQ-XE	Gorham, E.	NGT 00-050-258	3848
62	HARVARD UNIVERSITY	Foushee, H. C.	ARC	Hackman, J. R.	NCC 2-457	3470
62	UNIV OF MIAMI	Foushee, H. C.	ARC	Wiener, E. L.	NCC 2-524	2672
62	UNIV TEXAS-AUSTIN	Foushee, H. C.	ARC	Helmreich, R. L.	NCC 2-286	5345
69	BRANDEIS UNIVERSITY	Owens, F. C.	HQ-XE	Lackner, J. R.	NGT 00-050-306	3441
69	CAL STATE U-HAYWARD	Cohen, M. M.	ARC	Stoper, A. E.	NCC 2-318	1547
69	CAL STATE U-HAYWARD	Cohen, M. M.	ARC	Stoper, A. E.	NCC 2-529	1548
69	CORNELL UNIVERSITY	Rosendhal, J. D.	HQ-E	Galanter, E.	NAGW 860	4211
69	MASS INST OF TECH	Owens, F. C.	HQ-LE	Grimson, E.	NGT 22-009-906	3635
69	NEW MEX ST U-LAS CR	Remington, R.	ARC	Papp, K. R.	NAG 2-453	4073
69	NO CAR A&T STATE U	Billings, C. E.	ARC	Chen, C. S.	NCA 2-23	4425
69	OHIO STATE UNIV	Hartzell, E. J.	ARC	Miller, R. A.	NAG 2-195	4628
69	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Stoughton, J. W.	NGT 00-070-059	5590
69	OLD DOMINION UNIV	Owens, F. C.	HQ-LE	Coates, G. D.	NGT 00-050-120	5585
69	PENN COL OPTOMETRY	Fisher, S.	ARC	Whittaker, S.	NCA 2-202	4865
69	PURDUE UNIVERSITY	Hart, S. G.	ARC	Kartowitz, B.	NCC 2-349	3028
69	SAN JOSE STATE UNIV	Shafto, M. G.	ARC	Jordan, K.	NCC 2-327	1606
69	GEORGIA INST OF TECH	Palmer, E. A.	ARC	Rouse, W. B.	NAG 2-123	2706
69	STANFORD UNIVERSITY	Ahumada, A. J.	ARC	Wandell, B. A.	NCC 2-307	1739
69	SYRACUSE UNIVERSITY	Watson, A. B.	ARC	Pelli, D. G.	NCA 2-232	4386
69	UNIV CALIF-BERKELEY	Bucher, N. M.	ARC	Hardyck, C. D.	NAG 2-338	1795
69	UNIV CALIF-BERKELEY	Bucher, N. M.	ARC	Meredith, W.	NCA 2-280	1870
69	UNIV CALIF-DAVIS	Clearwater, Y. A.	ARC	Coss, R. G.	NAG 2-428	1913
69	UNIV CALIF-DAVIS	Clearwater, Y. A.	ARC	Harrison, A. A.	NAG 2-431	1914
69	UNIV CALIF-DAVIS	Owens, F. C.	HQ-XE	Coss, R. G.	NGT 00-070-018	1943
69	UNIV CALIF-IRVINE	Clearwater, Y.	ARC	Evans, G.	NAG 2-387	1947
69	UNIV CALIF-SAN DIEGO	Johnston, J. C.	ARC	Pashler, H.	NCA 2-225	2145
69	UNIV CALIF-S CRUZ	Watson, A.	ARC	Hitchner, L. E.	NCA 2-248	2216
69	UNIV ILLINOIS-URBANA	Hart, S. G.	ARC	Wickens, C. D.	NAG 2-308	2927
69	UNIV ILLINOIS-URBANA	Hart, S.	ARC	Kramer, A. F.	NAG 2-369	2928
69	UNIV ILLINOIS-URBANA	Hart, S. G.	ARC	Donchin, E.	NAG 2-466	2929
69	UNIV ILLINOIS-URBANA	Hart, S. G.	ARC	Donchin, E.	NCC 2-380	2957

NASA'S UNIVERSITY PROGRAM

APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
69	UNIV OF LOUISVILLE	Owens, F. C.	HQ-LE	Fell, R. D.	NGT 00-050-021	3176
69	UNIV OF MIAMI	Palmer, E.	ARC	Wiener, E.	NCC 2-377	2671
69	UNIV MICH-ANN ARBOR	Harrison, R. L.	ARC	Clipson, C. W.	NAG 2-440	3720
69	UNIV OF PENNSYLVANIA	Hartzell, E. J.	ARC	Badler, N.	NAG 2-426	4937
69	UNIV OF SOUTHERN CAL	Hart, S. G.	ARC	Hancock, P. A.	NCC 2-379	2266
69	U TEX HLTH SC CTR-DA	Owens, F. C.	HQ-XE	Blomqvist, C. G.	NGT 00-050-206	5416
69	UNIV OF TORONTO	Hart, S. G.	ARC	Moray, N.	NAGW 429	5933
69	UNIV OF VIRGINIA	Kaiser, M. K.	ARC	Proffitt, D. R.	NCA 2-87	5633
69	UNIV OF VIRGINIA	Kaiser, M. K.	ARC	Proffitt, D. R.	NCA 2-255	5634
69	UNIV OF WASHINGTON	Nagel, D. C.	ARC	Nelson, T. O.	NCA 2-299	5795
69	UNIV WISC-MADISON	Wenzel, E.	ARC	Wightman, F. L.	NCA 2-115	5895
69	UNIV WISC-MADISON	Wenzel, E. M.	ARC	Wightman, F. L.	NCC 2-542	5897
71	COLORADO STATE UNIV	Owens, F. C.	HQ-LE	Omi, P. N.	NGT 00-050-094	2298
71	UNIV OF AKRON	Owens, F. C.	HQ-LE	Harris, F. W.	NGT 00-070-015	4712
71	UNIV OF CHICAGO	Ahluwalia, H. S.	HQ-ES	Dwyer, J. R.	NGT 00-050-272	2899
71	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-LE	Simmons, D. J.	NGT 00-050-007	3912
73	AMERICAN UNIVERSITY	Fries, S. D.	HQ-LB	McCurdy, H. E.	NASW 4236	2497
73	GEORGE WASHINGTON U	Fries, S.	HQ	Logsdon, J. M.	NASW 4237	2540
73	UNIV HOUSTON-CL LAKE	Fries, S. D.	HQ-LB	Bilstein, R. E.	NASW 4229	5274
73	UNIV OF KANSAS	Fries, S.	HQ-	Lewin, T. S.	NASW 4248	3147
73	UNIV MARYLAND-COL PK	Fries, S. D.	HQ-LB	Friedel, R. D.	NASW 4193	3377
75	GEORGIA SOUTHERN COL	Atkinson, J. D.	JSC	Tryman, N. D.	NAG 9-265	2750
75	UNIV OF NEW MEXICO	Schwartz, F.	LERC	Grannemann, W. W.	NGR 32-004-002	4102
76	TEXAS A&M UNIVERSITY	Owens, F. C.	HQ-XE	Ferrell, M. Z.	NGT 00-050-248	5205
79	CAL STATE U-SACRAMEN	Foushee, H. C.	ARC	Sparks, P. M.	NCC 2-310	1561
79	SO CAL INST OF ARCH	Cohen, M. M.	ARC	Nixon, D. A.	NCC 2-356	1620
79	STATE U NY-BINGHAMTN	Owens, F.	HQ-XE	Pattee, H.	NGT 00-050-036	4334
79	WORCESTER POLY INST	Friedman, R.	LERC	Custer, R. L.	NAG 3-821	3687
79	WORCESTER POLY INST	Snoddy, W. C.	MSFC	Tuler, F. R.	NAG 8-709	3689
99	AUBURN UNIV-AUBURN	Owens, F. C.	HQ-XE	Tatarchuk, B. J.	NGT 00-050-353	1041
99	BRADLEY UNIVERSITY	Davis, L.	KSC	Podlasek, R. J.	NAS10-11425	2819
99	CALIF INST OF TECH	Dabbs, J.	MSFC	Prince, T. A.	NAG 8-669	1471
99	CALIF INST OF TECH	Owens, F. C.	HQ-XE	Yung, Y.	NGT 00-050-227	1523
99	CAL STATE U-FRESNO	Dacanay, M.	ARC	Beringson, D.	NCA 2-242	1544
99	CASE WESTERN RESERVE	Oran, W. A.	HQ-IC	Wallace, J. F.	NAGW 1193	4534
99	CITY COLLEGE OF N Y	Owens, F. C.	HQ-XE	Pierson, W. J.	NGT 00-070-084	4119
99	CORNELL UNIVERSITY	Boggess, N. W.	HQ-EZ	Harwit, M.	NAGW 761	4209
99	FLORIDA A&M UNIV	Spears, J. M.	KSC	Kidd, C.	NAG10-44	2581
99	FLORIDA INST OF TECH	Littlefield, M.	KSC	Dilpare, A. L.	NAG10-37	2593
99	HAMPTON UNIVERSITY	Smith, B.	LARC	Bowman, A.	NCA 1-75	5522
99	HOWARD UNIVERSITY	Menchan, D.	GSFC	Woodard, M. C.	NCA 5-107	2569
99	HOWARD UNIVERSITY	McGee, A. S.	HQ-XE	Fan, D. N.	NGT 09-011-060	2572
99	HUNTER COLLEGE	Owens, F. C.	HQ-XE	Strahler, A. H.	NGT 00-050-149	4265
99	JOHNS HOPKINS UNIV	Graeber, R. C.	ARC	Baker, S. P.	NCC 2-555	3265
99	MASS INST OF TECH	Hess, C. W.	JSC	Salisbury, J. K.	NAG 9-319	3561
99	MASS INST OF TECH	Owens, F. C.	HQ-LE	Prinn, R. G.	NGT 22-009-903	3632
99	MORGAN STATE UNIV	Friedmen, D. S.	GSFC	Taylor, J.	NCA 5-104	3275
99	OHIO STATE UNIV	Fogleman, S. W.	HQ-EB	Kraus, J. D.	NAGW 750	4655
99	OKLAHOMA STATE UNIV	Bilbrough, L.	HQ-XE	Wiggins, K.	NCCW 5	4783
99	OKLAHOMA STATE UNIV	Bilbrough, L. B.	HQ-LF	Wiggins, K. E.	NASW 4000	4782
99	OLD DOMINION UNIV	Owens, F. C.	HQ-XE	Coates, G. D.	NGT 00-070-060	5591
99	PENN STATE U-UNIV PK	Smith, I. S.	GSFC	Harrison, I. R.	NAG 5-643	4885
99	PENN STATE U-UNIV PK	Smith, I. S.	GSFC	Hunt, J. P.	NAG 5-644	4886
99	PENN STATE U-UNIV PK	Oran, W. A.	HQ-IC	Hymer, W.	NAGW 1196	4900
99	PENN STATE U-UNIV PK	Owens, F. C.	HQ-XE	Anderson, R. B.	NGT 00-070-044	4930
99	PRINCETON UNIVERSITY	Asrar, G.	HQ-EE	Wood, E. F.	NAGW 1392	4041
99	SAN FRAN STATE UNIV	Milov, L. A.	ARC	Heidtman, R. W.	NCA 2-175	1580
99	SAN FRAN STATE UNIV	Milov, L. A.	ARC	Cunningham, A. F.	NCA 2-188	1581
99	SAN FRAN STATE UNIV	Milov, L. A.	ARC	Greenaway, L. B.	NCA 2-267	1583
99	SAN JOSE STATE UNIV	Pike, R. L.	ARC	Freeman, J.	NCA 2-117	1591

NASA'S UNIVERSITY PROGRAM
APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
99	SAN JOSE STATE UNIV	Pike, R. L.	ARC	Freeman, J.	NCA 2-295	1597
99	SOUTHEASTN OKLA ST U	Bivins, R.	HQ	McRorey, T. J.	NASW 4192	4785
99	SO UNIV & A&M COL-BR	Gilbert, R.	HQ	Roquemore, L.	NASW 4231	3199
99	STANFORD UNIVERSITY	Givens, J. J.	ARC	Germane, G.	NCA 2-269	1707
99	STANFORD UNIVERSITY	Black, D.	ARC	Petrosian, V.	NCC 2-322	1740
99	STANFORD UNIVERSITY	Witherow, W. J.	MSFC	Hornsy, G. M.	NAG 8-715	1650
99	STANFORD UNIVERSITY	Owens, F. C.	HQ-XE	Vitousek, P.	NGT 00-050-171	1775
99	STATE U NY-STONY BRK	Knott, W. M.	KSC	Krikorian, A. D.	NAG10-35	4364
99	UNIV ALA-HUNTSVILLE	Fields, S. A.	MSFC	Torr, D.	NAG 8-639	1114
99	UNIV ALA-HUNTSVILLE	Smith, L. J.	MSFC	Gregory, J.	NAS 8-36955	1156
99	UNIV ALA-UNIVERSITY	Curren, P. A.	MSFC	Stefanescu, D. M.	NAS 8-36193	1185
99	UNIV OF ARIZONA	Melugin, R. K.	ARC	Richard, R. M.	NCC 2-426	1393
99	UNIV OF ARIZONA	Owens, F. C.	HQ-LE	Lebofsky, L. A.	NGT 00-050-048	1402
99	UNIV CALIF-BERKELEY	Dacanay, M. D.	ARC	Bender, R.	NCA 2-94	1855
99	UNIV CALIF-BERKELEY	Jones, H. W.	ARC	Shu, F.	NCC 2-36	1874
99	UNIV CALIF-BERKELEY	Ellis, S. R.	ARC	Stark, L.	NCC 2-86	1875
99	UNIV CALIF-BERKELEY	Owens, F. C.	HQ-LE	Cranz, G.	NGT 00-050-099	1893
99	UNIV CALIF-SAN DIEGO	Solloway, C. B.	HQ-ST	Arnold, J. R.	NAGW 629	2114
99	UNIV CALIF-S BARBARA	Imhoff, M. L.	GSFC	Simonett, D. S.	NAG 5-1010	2186
99	UNIV OF CENTRAL FLA	Davis, T. C.	KSC	Gonzales, A.	NAG10-42	2617
99	UNIV OF CENTRAL FLA	Davis, T. C.	KSC	Gonzalez, A.	NAG10-43	2618
99	UNIV OF CENTRAL FLA	Boggs, W.	KSC	Khaltar, M. K.	NAS10-11351	2619
99	UNIV OF CENTRAL FLA	O'malley, J. K.	KSC	Khattar, M.	NAS10-11385	2620
99	UNIV OF CHICAGO	Alexander, J. K.	HQ-E	Meyer, P.	NGL 14-001-258	2886
99	UNIV OF CHILE	Bodin, W. J.	GSFC	Diaz, E.	NAS 5-1925	5939
99	UNIV COLORADO-BOLDR	Arnold, R. J.	HQ-EC	Byerly, R.	NAGW 1105	2373
99	UNIV OF FLORIDA	Bivins, R. G.	HQ	Thornton, J. R.	NASW 4183	2645
99	UNIV OF FLORIDA	Williams, P.	KSC	Koopman, B.	NAG10-48	2642
99	UNIV OF FLORIDA	Masakowski, G. E.	KSC	Thornton, J. R.	NAS10-11386	2646
99	UNIV OF FLORIDA	Davis, L.	KSC	Farber, E. A.	NAS10-11481	2647
99	UNIV OF GEORGIA	Ault, L.	HQ	Carmon, J. L.	NASW 4194	2761
99	UNIV HOUSTON-HOUSTON	Santy, P. A.	JSC	Bell, L.	NAS 9-16593	5252
99	UNIV HOUSTON-HOUSTON	Heselmeyer, R.	JSC	Hunsucker, J. L.	NAS 9-17315	5253
99	UNIV HOUSTON-HOUSTON	Goodrich, W.	JSC	Tezduyar, T. E.	NAS 9-17380	5254
99	UNIV HOUSTON-CL LAKE	Garman, J. R.	JSC	McKay, C. W.	NAS 9-17010	5273
99	UNIV OF KENTUCKY	Bivins, R.	HQ	Roeder, P.	NASW 4142	3169
99	UNIV OF KENTUCKY	Bivins, R.	HQ	Strong, W. R.	NASW 4186	3170
99	UNIV OF MAINE-ORONO	Averner, M.	HQ-EB	Margulis, L.	NAGW 607	3214
99	UNIV MICH-ANN ARBOR	Owens, F. C.	HQ-LE	Irani, K. B.	NGT 00-050-110	3794
99	UNIV OF NEW MEXICO	Bivins, R.	HQ	Morain, S. A.	NASW 4191	4101
99	UNIV OF PENNSYLVANIA	Bryan, C. J.	KSC	MacDiarmid, A. G.	NAG10-25	4945
99	UNIV OF SOUTHERN CAL	Bivins, R.	HQ	King, R.	NASW 4199	2263
99	UNIV TENNESSEE-KNOXV	Abbott, K. H.	ARC	Ali, M.	NAG 1-513	5053
99	UNIV TENNESSEE-KNOXV	Belton, C.	KSC	Chang, H.	NAG10-46	5069
99	UNIV TENNESSEE-KNOXV	Owens, F. C.	HQ-LE	Ali, M.	NGT 43-001-807	5075
99	UNIV OF VIRGINIA	Owens, F. C.	HQ-XE	Gangloff, R. P.	NGT 00-070-063	5648
99	UNIV WISC-MADISON	Twarowski, R. J.	ARC	Sromovsky, L. A.	NAS 2-12078	5881
99	UNIV WISC-MADISON	Owens, F. C.	HQ-XE	Vailas, A.	NGT 00-070-093	5904
99	COLLEGE OF WM & MARY	Morello, S. A.	LARC	Feyock, S.	NAG 1-618	5480
99	COLLEGE OF WM & MARY	Prior, E. J.	LARC	Kranbuehl, D. E.	NAS 1-18347	5490
99	VIRGINIA POLY INST	Nabors, S. A.	MSFC	Sink, D. S.	NAG 8-99	5704
99	VIRGINIA POLY INST	Owens, F. C.	HQ-XE	Dugger, W. E.	NGT 00-050-230	5720
99	VIRGINIA STATE UNIV	Owens, F. C.	HQ-LE	Wightman, J. P.	NGT 00-050-112	5727
99	WAKE FOREST UNIV	Belton, C.	KSC	Thomas, S. J.	NAG10-45	4473
99	WASHINGTON UNIVERSTY	Rosenthal, J. D.	HQ-E	Walker, R. M.	NAGW 122	3901
99	WASHINGTON UNIVERSTY	Owens, F. C.	HQ-XE	Arvidson, R. E.	NGT 00-050-162	3915

1. Report No. NASA TM-101743		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle University Program Management Information System Fiscal Year 1988				5. Report Date FY 1988	
				6. Performing Organization Code	
7. Author(s)				8. Performing Organization Report No.	
				10. Work Unit No.	
9. Performing Organization Name and Address Office of External Relations University Programs Branch Code XEU National Aeronautics and Space Administration Washington, DC 20546				11. Contract or Grant No.	
				13. Type of Report and Period Covered	
12. Sponsoring Agency Name and Address				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract <p>The University Program Report, Fiscal Year 1988, provides current information and related statistics for 5,947 grants/contracts/cooperative agreements active during the report period. NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.</p>					
17. Key Words (Suggested by Authors(s)) University Programs NASA Programs			18. Distribution Statement Unclassified - Unlimited		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 406	22. Price * \$45.95